CRAFTS AND CRAFTSMEN IN BIHAR – SEVENTEENTH AND EIGHTEENTH CENTURIES

Thesis submitted to Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the degree of
DOCTOR OF PHILOSOPHY

ASHA SHUKLA

CENTERE FOR HISTORICAL STUDIES
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI – 110 067
INDIA

2001

Centre for Historical Studies
Jawaharlal Nehru University
New Delhi-110 067, India

CERTIFICATE

This is to certify that this thesis entitled **"Crafts and the Craftsmen in Bihar – Seventeenth and Eighteenth Centuries"**, submitted by **Asha Shukla** in partial fulfilment of the requirement for the award of the degree of **Doctor of Philosophy** (Ph.D.) of Jawaharlal Nehru University has not been previously submitted for any degree of this or any other University. This is her own original work.

We recommend that this thesis be placed before the examiners for evaluation.

(Prof. Harbans Mukhia)
(Supervisor)

Prof. Dilbagh Singh
(Chairperson)

CHS Office Phone: Ext. 2456 at (011) 6107676 or (011) 6167557
Gram: JAYENU Telex: 031-73167 JNU IN Fax: 91-11-6165886

CONTENTS

ACKNOWLEDGEMENT

I express my deep sense of gratitude to my supervisor Prof. Harbans Mukhia, without whose guidance and patient support, the work would not have been carried through. His valuable comments and critical reading of the drafts of the thesis were extremely rewarding and helped me to unravel some vital facets of this topic.

I wish to place on record my special debt to Dr. Naseem Akhtar, Director, Museums, Bihar for his willing cooperation in making available the 19th century paintings of the *Patna Qalam*. My sincere thanks to Dr. Om Prakash Pandey, Technical Officer, Patna Museum, who spend a lot of his valuable time in helping me locate and photograph these paintings. I am obliged to Dr. P. K. Shukla, Deputy Director, (Research), Indian Council for Historical Research, for ungrudgingly extending his help in making available books and periodicals for my research and for all his informal suggestions. I also thank, Dr. Jagdishwar Pandey, Director, K. P. Jayaswal Research Institute, for his cooperation and help on my research visits to the Institute. My deep thanks to Prof. Ashok Jha, Araria College, Araria, who accompanied me on my field study of craft technology to the relatively inaccessible areas of Purnea and Araria districts.

I would also like to acknowledge the assistance rendered by the Staff of the National Archives of India, New Delhi, Bihar State Archives, Patna, A.N.S. Institute of Social Studies Library, Patna, Bihar State Secretariat Library, Patna. They took great pains in making available source information material for the thesis.

I deeply appreciate the warmth and hospitality extended to me by Mrs. Kameswari Viswanadham during the course of the typing of my manuscript. I also thank Mr. Bhardwaj for his special efforts in helping me with my sketches and illustrations.

My loving thanks to Kamal for all the facilities he extended to me and for taking care of the last moment nitty-gritty's that made my work less cumbersome. Over and above all, I would like to express my respectful thanks to my parents for their untiring support. They have patiently and unhesitatingly stood by me, as no one else, in all my moments of crisis. To them I owe a lot and to them I dedicate this thesis.

ASHA SHUKLA

CHAPTER I

INTRODUCTION

"The study of technology is an essential key to the understanding of a people's culture."[1] These words of M.J.Harskovits perhaps aptly sum up the two-fold focus of this work "Crafts and Craftsmen in Bihar - Seventeenth and Eighteenth Centuries" - the narration of the history of the technology of each craft and, equally significant, understanding the meaning of this history in human terms through ethnographic sketches of the craftsmen. It has long been recognised by scholars that the history of technology of any craft is no longer the story solely of machines and processes, nuts and bolts. Technology can be best appreciated as a human activity and as a part of on going life. Fernand Braudel aptly asserts, "The history of Technology is that of human history in all its diversity".[2] Technologies do not appear in a vacuum–they have a socio–economic and cultural context. Socio-economic changes are often influenced, if not determined by particular technological events; on the other hand socio-economic changes sometimes induce and at others repel technological mutations. Technology is not culturally, morally or politically neutral. Technology and society exist in an intricately interwoven relationship.

---

1 M.J.Harskovits, *Man and his Works*, New York, 1952: 241.

2 Fernand Braudel, *Civilisation and Capitalism 15th-18th Century, The Structure of Everyday Life*, vol. I, 1982: 430. Also, Arnold Pacey, *The Culture of Technology*, Oxford, 1983: 2.

A study of the medieval Indian craft technology and production has to begin with the acceptance of the fact that the broad chronological framework of this history has already been built up by similar studies of the craft technology of Europe, China and Persia. The important elements of various pre-modern mechanical devices have been largely identified, their technological and economic significance been analysed and their first appearance in the two civilizations of Europe and China satisfactorily dated. Thus for a description and interpretation of technology and chemical processes and for grasping and dating the process of diffusion in India these works provide the necessary entry point.[3]

Specifically in the context of medieval India the work of a few scholars has provided the framework for further investigation on the subject of craft production and technology. The foundation of the study of medieval Indian technology was laid by the learned Sanskritist P.K. Gode through a series of papers written over a long period.[4] Gode's explorations on varied themes ranged from the development of the stirrup, introduction of distillation, glass for vessels and bangles, paper, pyrotechnic gunpowder and

---

3 A.P. Usher, *A History of Mechanical Inventions*, 2nd revised edn., Boston, 1959; R.J. Forbes, *Studies in Ancient Technology*, Leiden, 1955; C. Singer (ed.), *History of Technology*, Oxford, 1954-58; Lynn White, Jr, *Medieval Technology and Social Change*, New York, 1962-66. J. Needham, *Science and Civilisation in China*, Cambridge University Press, 1954.

4 P.K.Gode, *Studies in Cultural History*, 3 vols., Hoshiarpur and Poona, 1960, 1961 and 1969.

nutcracker. Gode sought to establish the antiquity of diverse techniques or devices in India with the help of very definite evidence.

A preliminary attempt at establishing the major technological changes in craft and agriculture in the 13th and 14th centuries and co- relating them with changes in political and social history was made by Irfan Habib in 1969.[5] The major questions raised by Irfan Habib related to the coming of the Persian Wheel *(saqiya)*, the spinning wheel *(charka)* and the stirrup. Irfan Habib later surveyed the production technology of the Mughal period.[6] He further attempted an account of the changes in medieval technology based on the new evidence that had till then been brought to light.[7] He gave a restatement on devices of gearing, belt drive, building construction, paper, distillation, and military devices etc. He also discussed India's technological response to the West in the precolonial period. Dharampal provided a different view of the level of technology, through valuable extracts from the 18th century descriptions. [8]

---

5 Irfan Habib, 'Technological Changes and Society, 13th and 14th Centuries' Presidential Address, Medieval Indian Section, Indian History Congress, Varansi, 1969, *Proceedings of Indian History Congress*, (hereafter *POIHC*), 1969.

6 Irfan Habib, 'The Technology and Economy of Mughal India' *Indian Economic and Social History Review* (hereafter *IESHR*), vol. xvii (I), Jan.-March,1980: 1-34.

7 Irfan Habib, 'Changes in Technology in Medieval India', *Studies in History,* vol. II, No. 1, 1980, Delhi.

8 Dharampal, *Indian Science and Technology in the Eighteenth Century: Some Contemporary European Accounts*, Delhi, 1971.

Certain individual aspects of the medieval Indian technology have also been studied. For the textile craft important material has been provided on the history of cloth printing as well as painting by Geo P. Baker.[9] H. R. Ghosal wrote a paper on cotton industry in Bengal, Bihar and Orissa mainly based on Buchanan's survey.[10] John Irwin, identified the different Indian textile products, designated by various name in European sources, in the 17th century and made suggestions on the history of textile technique.[11] Moti Chandra contributed two detailed papers on clothing and costumes in the early medieval period as well as some details in the textile technology.[12] Irfan Habib studied the technology and the organisation of production of the Indian textile industry in the 17th Century.[13] S.A.K Ghori and A. Rahman described the paper

---

9 Geo P. Baker, *Calico Painting and Printing in the East Indies*, London, 1921.

10 H.R. Ghosal, 'Cotton Industry in Bengal, Bihar and Orissa during the Early 18th Century', *Journal of Indian History*, vol. XVIII (2), 1939.

11 John Irwin and P.R. Schwartz, *Studies in Indo European Textile History*, Ahmedabad, 1966, also 'Indian Textile Trade in the 17th Century', *Journal of Indian Textile History*, (hereafter *JITH)* Ahmedabad, vol. I: 5-30, vol. II: 35-30, vol. III: 59-70.

12 Moti Chandra, 'Indian Costumes and Textiles from the 8th to the 12th Century', *JITH*, vol. V, 1960, 'Costumes and Textiles in the Sultanate Period', *Ibid.*, vol. VI, 1961.

13 Irfan Habib, 'Notes on Indian Textile Industry in the 17th century', *Essays in honour of Professor S.C Sarkar*, New Delhi, 1976: 180-192.

technology in medieval India.[14] A.J. Qaisar presented evidence on the methods of carpentry and other aspects of Indian ship building technique in the 17th Century,[15] the glass industry of the Mughal period[16] as well as the building industry.[17] Following a detailed discussion by Gode,[18] the process of distillation has been treated by I.G. Khan,[19] The manufacture of saltpetre in Bihar in the 17th century has been discussed by Jagdish Narayan Sarkar.[20] He is also credited with a study of the processes of manufacturing indigo although he tended to generalize on the basic of sporadic evidence.[21] Iqtidar Alam Khan and K.K. Trivedi have unfolded archeological and textual evidence on indigo production in the

---

14 S.A.K. Ghori and A.Rahman, 'Paper Technology in Medieval India'. *Indian Journal of the History of Science. I (2) 1966: 13.*

15 A.J. Qaisar, 'Ship-building in the Mughal Empire during the Seventeenth century', *IESHR*, vol. (21), 1968.

16 A.J. Qaisar, 'Level of Technology in India on the eve of the 18th century: the case of Glass', *Studies in History*, vol. II (i) 1980.

17 A.J. Qaisar, *Building Construction in Mughal India: Evidence from Painting*, Delhi, 1998.

18 P.K. Gode, *Studies in Cultural History*, vol. III: 115-22.

19 I.G. Khan, 'Some aspects of Chemical Technology during Akbar's Reign: A historical and scientific Evaluation'. *POIHC*, Hyderabad, 1978.

20 Jagdish Narayan Sarkar, 'The Saltpetre Industry of India in the 17th Century with special reference to Bihar' *Journal of Bihar and Orissa Research Society*, (hereafter is *JBORS*), vol. xxiii (3), 1937.

21 Jagdish Narayan Sarkar, ***Studies** in Economic Life in Mughal India (1556-1707)*, Delhi, 1975: 164-176.

Bayana tract.[22] Isharat Alam has discussed the Indigo production, and vat technology in the Bayana and Sarkhej tracts.[23]

These detailed studies of medieval Indian craft technology have been valuable in answering the questions about the barriers that Indian society imposed over technological innovations and diffusion, preventing India from entering the kind of process of technological change that Europe witnessed from the 15th century onwards before the Industrial Revolution. The views of the earlier western scholars, who glibly dubbed the Indian society, as "Static", tradition bound, impervious to innovation and change, is no longer, accepted. Neither is the Weberian analysis of the caste system preventing the advance of technology acceptable. Max Weber asserted that any change of place, occupation or even the nearest change in work technique could precipitate caste schism and a new caste created by each deviations was invariably ranked lower than its parent group on the ritual and social status. Thus the caste system stifled initiative and new specialization's among

---

22 Iqtidar Alam Khan, 'Pre-Indigo Vats of Bayana,' *Journal of Islamic Environment Design, Rome,* 1989: 92-98; K.K. Trivedi, 'Indigo in the Bayana Region in the 17th Century, Manufacturing Process and its Implications', working Paper Series, SSS/1989/ITNI Jawaharlal Nehru University, New Delhi; 1-28; K.K. Trivedi, 'Innovation and Change in Indigo Production in Bayana, Eastern Rajasthan', *Studies in History,* vol. 10, No. 1, New Series, Jan-June, 1994: 53-76.

23 Isharat Alam, 'Indigo Production Technology', in A.J. Qaisar, S.P. Verma (eds.), *Art and Culture Felicitation Volume in Honour of Professor S. Nurul Hassan,* 1993: 119-126. Also See, M.K. Naqvi, 'Dying agents in India A.D. – 1200-1800,' *Indian Journal of History of Science*, vol. 26(2), 1991, 158-183.

artisans, segregated skills and inhibited social mobility from generation to generation. Weber concluded, caste "sustains tradition no matter how often the powerful development of capitalism overrides it".[24]

Morris D. Morris challenged the entire Weberian argument. [25] Irfan Habib too negated the theory by arguing that the mass of ordinary or unskilled people formed a reserve, from which new classes of skilled professions could be created when the need arose. More important, over a long period economic compulsions could bring about a radical transformation in the occupational basis of a caste. Sometimes even administrative action was in favour of keeping the gates of the professions open.[26]

The over simplified assumptions on the innate conservatism of the Indian artisans, their dispositions, xenophobic and caste prejudices, or habits, theological inhibitions and the pejoratively referred to 'oriental' resistance to non-traditional innovations were reconsidered and a range of alternative answers were offered by historians to the question of the obstacles encountered by industry

---

24 Max Weber, *The Religion in India,* Trans and ed. Gerth and D.Martindale, Glencoe, 1958:123,

25 Morris D. Moriris, 'Values as an Obstacle to Economic Growth in South Asia', *Journal of Economic History*, vol. XVII: 588-607.

26 Irfan Habib, 'Potentialities of Capitalist Development in the Economy of Mughal India', *Enquiry,* New Series, Vol. iii, No. 3, Winter, 1971: 39-40; Also in *Journal of Economic History*, vol, 29, No. 1, 1969

or proto-industry in India. Irfan Habib argued that an enormous supply of cheap, skilled labour tended to inhibit mechanical labour saving devices. A finer product could be attained more cheaply by a larger application of human labour, manual skill and dexterity than by adopting a mechanical refinement. Labour living on barely subsistence level low income could not afford tools or materials calling for any expense. [27]

Sabhyasachi Bhattaacharya on the basis of case studies of technological innovation in filature silk, cotton ginning and iron manufacture posited an alternative view. He suggested that the new technology brought in its train extraneous control over the artisan's process of production. It separated the artisan from the use and possession of the implements of production. The consequence was the loss of his mastery over his labour process. It was this loss that he was resisting.[28]

Harbans Mukhia in a paper on this theme analysed the paradox in which the artisans were reluctant to use the decidedly superior technique of filature silk winding in Bengal even though they had learnt and mastered it so eagerly. His answer was that the introduction of filature coincided with the administrative

---

27 Irfan Habib, 'Technology and Barriers to Technological Changes in Mughal India' *Indian Historical Review*, (hereafter *I.H.R*), vol. v, Nos. 1-2, 1978-79: 152-174.

28 Sabhayasachi Bhattacharya 'Cultural and Social Constraints on Technological Innovation" *I.E.SHR*, III (3), 1994: 240-267.

intervention of the East India Company to limit or lower the price of filature silk, in order to keep it at par with the prices of silk in the highly competitive European market. The artisans soon realized that while the productivity of labour was much higher in the country wound silk, the deliberate lowering of prices of filature silk would lead them to a situation of forced impoverishment. It was this situation that the artisans were resisting in resisting the general spread of the filature technology.[29] Gautam Bhadra has analysed the development and diffusion of filatures and argued that the filatures did not offer a better future but greater bondage and displacement from their own homes for the artisans.[30]

A. Jan Qaisar shed interesting light on the question. He showed that Indians responded positively in such sectors where they faced a challenge and treated technology from outside with indifference or rejection where appropriate indigenous alternatives were equally attractive if not superior. Thus, the Indian response to European technology in the 16th and 17th Centuries was "scrupulously selective in its nature, depending on convenience, utility, exigencies, or other material and pragmatic

---

29 Harbans Mukhia, ''Social Resistance to Superior Technology: The Filature Eighteenth Century Bengal', *Indian Historical Review*, (hereafter *I.H.R*) vol. II, no. 1-2, 1984-85.

30 Gautam Bhadra ''Silk Filature and Silk Production: Technological Development in the Early Colonial Context 1768-1833' in Deepak Kumar (ed.), *Science and Empire Essays in Indian Context 1700-1947,* Delhi, 1991: 59-86.

consideration."[31] K. K. Trivedi citing examples from the *subah* of Agra too shows that in cases of indigo and sugar the indigenous systems of technology not only to have been as advanced but also sensitive to positive change in demand.[32]

Irfan Habib asserted that the vital two-way relationship between craft production technology and theoretical science did not develop in India at any stage, on account of the "enormous intellectual failure of the ruling class." The Indian rulers and educated strata remained indifferent to technology and refused to respond to western science and thought. This is reflected in the fact that no works were written in the sixteenth and seventeenth century showing any influence whatsoever of European technological treatises, or taking note of European mechanical devices. Irfan Habib points out that this attitude of the Mughal ruling class was because the system of extraction of agrarian surplus placed at their disposal enormous resources, luxury craft goods and services of all kinds. There was very little sense of deprivation in not obtaining the mechanical products from Europe. They became immune to the temptation of imitating European technology until it was too late.[33]

---

[31] A.J. Qaisar, *Indian Response to European Technology and Culture A.D. 1498-1707*, New Delhi, 1982: 139.

[32] K.K. Trivedi, *Agra: Economic and Political Profile of a Mughal Suba, 1580-1707*, Pune, 1998.

[33] Irfan Habib, 'Capacity of Technological Changes in Mughal India' in A. Roy, S.K. Bagchi (eds.), *Technology and Culture*, Delhi, 1982. Also, Irfan Habib, 'Reason and Science in Medieval India' in D. N. Jha (ed), *Society and Ideology in India. Essays in Honour of Professor R. S. Sharma*, New Delhi, 1996: 163-174.

A Rahman says, "Major innovation in technology can only take place when the technical knowledge is well developed, in a theoretical framework, and is applied to improve or change the technology. It is detrimental to both society and science when the available scientific knowledge is divorced from technology, or when there is no interaction between scientists, technologists or artisans or craftsmen due to social or other factors."[34]

Satish Chandra emphasizes that the world view of the Mughal ruling class and the intelligentsia it patronized was the product of a long tradition which was shaped by religion. The task of breaking this tradition entailed a long and difficult struggle. Abul Fazl, had lamented: "the blowing of the heavy wind of *taqlid* (tradition) and the dimming of the land of wisdom. Of old the door of "how" and "why" has been closed and questioning and inquiry have been deemed fruitless and tantamount to paganism." Science and technology could hardly thrive and prosper in such an atmosphere.[35]

Irfan Habib also suggested that the development of technology was restricted by the dependence of craft production on the vast system of appropriation of agrarian surplus in the Mughal

---

34 A.Rahman (ed.), *History of Indian Science, Technology and Culture. A.D. 1000-1800,* 1999; also A. Rahman, *A Perspective in Indian Science*, vol. III, Part I: 7-31.

35 Satish Chandra, *Medieval India From Sultanate to the Mughals: Mughal Empire (1526-1548),* Part Two, Delhi, 1999:452.

Empire. The breakdown of this system amidst a severe agrarian crisis during the latter half of the seventeenth century, led to an urban decline and a possible fall in the volume of craft production. This set the seal on the future progress of technology in India.[36]

However historians in the recent past writing on the eighteenth and nineteenth centuries have discussed that even while the Mughal Empire continued to disintegrate there emerged secure regional power bases with a robust economy. This led to a flourishing agriculture, powerful and prosperous merchants, the proliferation of small markets and production centres integrated by a network of trade and monetary transactions leading to the creation of town and urban development. These writings do not accept that the decline of the Mughal Empire led to the economic stagnation of the entire society. Muzaffar Alam shows economic stability and a rather unusual growth in the regions for the earlier half of the eighteenth century, though political crisis is also implied.[37] C.A. Bayly has advanced the notion of 'unity' in the political economy of North India from about 1740 to 1830.[38] Similar arguments have been made by others like David Ludden,

---

36 Irfan Habib, 'Technology and Barriers to Social Change': 174.

37 Muzaffar Alam, *The Crisis of Empire in Mughal North India: Awadh and the Punjab, 1707-48*, New Delhi, 1986: 103.

38 C.A. Bayly, *Rulers, Townsmen and Bazaars: North Indian Society in the Age of British Expansion, 1770-1870*, Cambridge, 1983.

Burton Stein, Nicholas Dirks and David Washbrook[39] for other parts of India. S. Arasaratnam in a study of the weavers and the handloom industry in South Eastern India suggests that the weavers were responsive to the increasing demand for better quality production by the East India Company. The weavers made a vital shift from local based subsistence oriented production to more specialized factory oriented production with higher profitability and market consumption [40]

The problem of the level of technological skills available is related to the larger question of potentialities of growth in medieval Indian society and economy and whether India was capable of developing a higher i.e. a capitalist order prior to the British conquest. This in turn raises multi-dimensional problems—organisation and relations of production, institutional factors including the nature of the State and of the ruling classes, demographic trends, the role of the superstructure including the role of the ruling classes, ideological trends, value structures etc.

---

39 David Ludden, *Peasant History in South India,* New Delhi, 1993; Nicholoas Dirks, *The Hollow Crown: Ethnohistory of an Indian Kingdom*, Cambridge, 1987; Burton Stein, 'State Formation and Economy Reconsidered' *Modern Asian Studies*, (hereafter *MAS.*) vol. 19, No. 3, July 1985; David Washbrook, 'Program and Problems: South Asian Economic and Social History, C 1720-1860', *MAS*, vol. 22, No. 1, 1988. More recently, Meena Bhargava, *State Society and Ecology, Gorakhpur in Transition* 1750-1830, Delhi, 1999.

40 S.Arasaratnam 'Weavers Merchant and Company-The Handloom Industry in South-Eastern India, 1750-90' in Sanjay Subrahmanyam (ed.), *Merchant, Markets and the State in Early Modern India,* New Delhi, 1990

In this context, W.H. Moreland pointed out that there was little possibility of capitalist development in medieval period without foreign intervention.[41] The Soviet historians A.I. Chicherov and V.I. Pavlov put forward opposite conclusions. They suggested an advanced stage of the subjugation of artisan production by merchant capital. They argued for the growing crisis of feudalism and the emergence of the rudiments of indigenous capitalism in India's precolonial economy. Chicherov and Pavlov attached importance to the existence outside the village of weavers and ascribe to this phenomenon a significant role in the "breaking" of the Indian village community.[42] Surendra Gopal reiterated the views of Chicherov.[43] Irfan Habib suggested that the position of the producer ranged from that of a servant of the village community to an independent commodity producer to that of a wageworker employed by the merchant. He pointed out that so long as the relations of such artisans with villages continued to be determined by custom, there would be little cause for the village community to be subverted.[44] Some others have suggested that as long as there was adequate amount of surplus cultivable land available, and the institutional forms which had been developed over the centuries for

---

[41] W.H. Moreland, *From Akbar to Aurangzeb, a Study in Indian Economic History*, London, 1923.

[42] A.I. Chicherov, *India Economic Development in the 16th - 18th Centuries; Outline History of Craft and Trade*, Moscow, 1971. V.I. Pavlov, *Indian Capitalist Class: A Historical Perspective, Delhi*, 1964: 12-13.

[43] Surendra Gopal, 'Social set up of Science and Technology in Mughal India', *Indian Journal of the History of Science*, IV, 1969.

[44] Irfan Habib, 'Potentialities of Capitalist Development'.

exploiting this situation continued to operate so that the land-man ratio did not exceed a certain point and handicrafts continued to provide an outlet for surplus employment to sizeable numbers, the crisis created by the feudal stagnation of the economy could be postponed, though it could not be resolved. It has also been suggested that the possibilities of capitalist development cannot be studied treating India as a whole as one unit. As in Europe, growth points have to be studied on a regional basis.

Besides issues like technological diffusion and craft organisation, in recent years' scholarship on the craftsmen himself has rapidly grown, enabling certain generalisation about the social and economic conditions of artisans in colonial India. Scholars have analysed the rituals and traditional symbols associated with various crafts, caste and subcaste formation, social mobility, kinship structure and art history.[45] A significant work on the

---

45 See, for example, G.S. Bhatt, 'The Chamar of Lukhnow', in *The Eastern Anthropologist*, Sept.-Nov. 1954, vol VIII, No. 1: 27-41. Jan Brouwer, *The Makers of the world: Caste, Craft and Mind of South Indian Artisans*, New Delhi, 1995; Nita Kumar, *The Artisans of Banares: Popular Culture and Identity*, New Jersey, 1988; P.K. Misra, *The Nomedic Gaduliya Lohar of Eastern Rajasthan*, Calcutta, 1978; Ronaldo Maduro, *Artistic Creativity in a Brahmin Painter Community*, Berkeley, 1976; Eberhard Fischer and Haku Shah, *Rural Craftsman and Their Work: Equipment and Techniques in the Mer Village of Ratadi in Saurashtra*, Ahmadabad, 1970, Studies on weavers include Mattison Mines, *The Warrior Merchants: Textiles, Trade and Territory in South India*, Cambridge, 1984 and Vijaya Ramaswamy, *Textiles, and Weavers in Medieval South India*, Delhi, 1985. On Punjab, the artisans in general, see H.C. Sharma, 'Changing World of Artisan, 1849-1947', in Indu Banga (ed.), *Five Punjabi Centuries: Polity, Economy, Society and Culture, C 1500-1900*, Delhi, 1997. On Himachal see Mahesh Sharma, 'Artisans and Monastic Credit in early Twentieth Century Himachal', *IESHR, vol. 36*, 2 1999.

urban and rural artisans is that of Chicherov, who has attempted to link the institutions of caste and village community with the development of the money economy in the context of the changing pattern of the structure and organization of the artisans.[46] However, gaps remains in our knowledge of specific regions and crafts.

The historiography on craft and the ensuing debates have underlined the scholarly acceptance of the fact that regional studies on craft are necessary for a more definitive and less tentative understanding of the changes in economic relations, in defining the major class contradictions of the society, in answering wider questions of power and social stratification, in judging correctly the level of industrial development of India and to answer questions on whether the economy was stagnant or dynamic and to what extent it was responding to the changes that were necessary for its transformation into a capitalist economy.

The dynamics of the craft sector made it conducive to growth. Craft was part of a larger pattern of exchange evolving over a period of time between a region and different units in India, Asia and Europe, based on mutual needs and advantages in resources. The techniques and processes in crafts required considerable specialisation. The vast area over which crafts circulated necessitated a fairly complicated network of relations.

---

46 Chicherov, *Indian Economic Development.*

The geographical spread of collection centres varied according to market needs, and as a result of this elasticity the impact of the increased demand would be dispersed over a wider region, even though, it proved less perceptible immediately. It was the cumulative effect of these aspects, which differentiated the craft sector from the agricultural sector. The economics of agriculture was by no means conducive to growth. While agricultural products had a ready market in such distant parts of India as Coromandal, Gujrat, Agra as well as countries abroad, the bulk of the marketable surplus was meant for the local market. Difficulties in transportation which was costly and time consuming narrowed down the range of market. The "Predominant character of Indian agriculture may be defined as self sufficiency. Self-sufficiency was manifested in the extent to which agricultural production was for local needs and the extent to which consumption habits in any region were determined by what was produced by agriculture of the region.[47]

Amidst the valuable contribution to a panoramic view of craft in the subcontinent, it is necessary to delineate and examine the regional dimensions of craft technology and organisation. In exploring the crafts of the region of Bihar, this work seeks to contribute to the continuing search for the first stirrings of change

---

47 D.R. Gadgil, *Origins of the Modern Business Class, An India Report*, Mimeograph, New York, 1959: 3, cited in H. Sanyal, Social Mobility in Bengali: Its Sources and Constraints', *IHR*, vol. 2, 1975-76: 83-84.

in industrial organisation or alternatively for explanations on why changes did not occur. What signs of change, if any, can be seen in an industry adjusting to new demand? On the basis of regional data on the crafts of Bihar, a generalisation, parallelism, and theorisation about technology and related socio economic problems will be attempted. At the same time caution has been exercised in the analysis of the diffusion of technology at a pan Indian level. This attempt is within the framework of the diversities and specificities of Bihar region. Thus any diversities in the general fame work have not been dismissed as a minor deviation.

The work defines craft in terms of broadly two overlapping categories (i) Craft, as a form of economic behaviour and activity which involved the physical and highly specialised process of manufacture and exchange. The series of manufacturing and economic activities involved in a craft moved from the craft producing village and the manufacturing town, to markets of various types with intermediary agencies of transport, brokerage, middlemen and money merchants. All these groups gained in varying degrees from the enterprise of preparing a craft. (ii) Craft as a sociological phenomenon in which various social groups performed differentiated functions. The network of relationships involved in a craft were that between the political rulers/patrons and merchants; between the merchants, creditors and brokers, peddlers and the craftsman himself.

In the complex inter-relationships between groups involved in the craft manufacture, this work accords the central position to the craftsman himself. There can be no doubt that the craftsman enjoyed great economic importance in every period of antiquity. By the skilled use of their tools the craftsman changed matter from its raw and virgin state into objects with a well-defined shape, function and beauty. They provided not only the essentials-lasting shelter, durable clothing, shoes that wore well, effective weapons and tools, but all the trappings of the community's cultural life. A lack of craftsmanship, the absence from the community of the men capable of working according to the highest standards, meant not merely an incidental lack of beautiful objects and luxuries but an overall cultural poverty, and a depression in the quality of life.

The services of the craftsman were indispensable. The villages, town and cities of Bihar had countless artisans. Some of these had been transformed into entire villages of artisans. They represented a milieu of individuals working both for the domestic and export market. The *barhai* or carpenter made ploughs, and other agricultural implements, built houses and even supplied wood for the cremation of the dead; the *chamar* was the tanner of leather; made shoes and saddlery, the cartman's whip and skinned the carcasses of the village cattle; the *kumhar* or the potter made earthen pots and bowls which were used for cooking eating and fetching water; the services of the *kamar* or the, metal worker, the *lohar* or the blacksmith were in daily requisition for manufacturing

heavy iron tools and implements in the *bhatti* (furnace); *nunia* was the saltpetre manufacturer and did various kinds of earth works, the *Sonar* worked in gold and silver making; the *tanti, julaha* or the weaver wove coarse and fine cloth.[48]

No village could be complete without the craftsmen and in this sense the craftsman was a cohesive entity within the society. The craftsmen were catering not only to the needs of the microcosm, the Bihar village - but to the material needs of the provinces and even different countries with which Bihar had commercial and economic contact. "The tardy weaver, the poor artisan, the patient potter and the diligent handicraftsman were all making their respective contribution, though silently and unostentatiously, to the widespread and varied economic activities in Bihar."[49]

Yet, no matter how useful, essential or beautiful the work of the craftsman for the need of the individual and the community, the craftsman himself was in no way looked upon as admirable or even worthy of any serious regard. The craftsmen seem to have been men who merely exploited the skill of their hands for their living. His activities and the nature of his work were matters of little or no account, simply to be taken for granted as a part of the natural scheme. A craftsman was "a man who was obsure, earning a small

---

48 J.A. Bourdillon, *Report on the Census of Bengal*, vol. I, Calcutta, 1881: 137-9.

49 J.N. Sarkar, *Glimpses of the Medieval Bihar Economy: Thirteen to mid Eighteenth Century*: 18.

wage, low in esteem, classed as worthless by public opinion, men to whom the nature of their employment denied all possibility of moral or political virtue, neither coveted by friends, feared by enemies, nor envied by fellowmen, just a workman, a face in the crowd."[50]

In his "Elegy written in a Country Church Yard" Thomas Grey observed, "Let not.... grandeur hear with a disdainful smile the short and simple annals of the poor." So very carpenter and workmaster, that laboureth night and day and they cut and grave seals, --- the smith also, sitting by the anvil—the potter sitting at his work...all these trust to their hands and every one is wise in his work. Without these cannot a city be inhabited. They shall not be sought for in public council, nor sit high in the congregation... but they will maintain the state of the world, and their desire is in the state of their craft."[51]

It is endeavour of this work to explore the identity of the "faceless craftsmen" and understand their world with sensitivity, illuminate their "mentality" and behaviour. How exactly do we characterise the craftsman—as a poor and illiterate man, for poverty, economic stringency, insecurity and ignorance were a fundamental fact of there lives; as an exploited and an injured worker, for their low capital investment and control of the market

50 Alison Burford, *Craftsmen in Greek and Roman Society*, London, 1972: 62.

51 *Ecclesiastices* xxxviii: 27-34.

by the middle men gave them a subordinate position with regards to others in the market place; or in the context of categories like caste, community, religion, ideology and certain network of social relations, all of which condemned them as "lower class and backward". Can we then dismiss the Craftsmen in incredibly simplistic terms-as people who never talked politics, never conspired, never thought, were unquestioning in their humility, exceedingly well disposed towards the superior classes, incapable of creating an 'autonomous' culture of their own?

The data collected in this work suggests that the category of "Craftsman" was not a undifferentiated category, but a complex one. There were fundamental variations between the craftsman according to the craft and within each craft according to their products. Various craft groups could have a common occupational identity in terms of craft. However their social and kinship relationships were necessarily not tied together. Crafts could be operated through varied systems of production in which a craftsman could be a servant of the village community, standing outside the sphere of the commodity production, an independent commodity producer, a credit bound producer and on a very limited scale, a wage labourer in the *karkhanas*. Each craft community also had its distinct socio-cultural norms. They had a rather, coherent and articulate world view even though the content of this worldview appears dismaying. In a word, the work seeks to locate the vision of those, we believe have no vision at all.

In an attempt to get closer to information on crafts and craftsman, this study considers the manufacture of cotton, silk, dyeing and metallurgy. These were the most widely spread crafts at the time. Either the age or strength of their traditions or the region's dependence on their prosperity made them the most representative crafts of Bihar. This however does not imply that the other crafts, which have not been described like pottery, glass ware, stone cutting, jewellery and leather works, spirit distilling, tent making, boat manufacture etc. were marginal or peripheral to the craft structure of seventeenth and eighteenth century Bihar. Ibn Khaldum's comment on craft elucidates this. "It should be known that crafts practised by the human species are numerous, because so much labour is continually available in civilisation. They are so numerous as to defy complete enumeration. However some of them are necessary in civilisation or occupy a noble (position) because of (their) object".[52] This study therefore confines itself to only those Crafts, which had a commercial viability and potential for export and mass domestic consumption.

The study of Crafts and Craftsmen in Bihar has been contextualized in the seventeenth and eighteenth centuries. This was a significant period in providing an impetus to the economy of Bihar. Bihar had always been an important region and link in the

---

52 Ibn Khaldum, *The Muqaddima,* trans. Franz Rosenthal, vol. II, New York, 1958: 325, cited in A.J. Qaisar, *Building Construction in Mughal India:* 1.

commodity structure of Indian trade and commercial contact with both Europe and Asia as well as other parts of India. However, the European demand in the 17th and 18th centuries for Bihar cotton textiles, silk piece goods, raw silk, indigo, saltpetre was a new phenomenon in the regions export trade. Trade was very profitable and we find the Patna factory of the East India Company being withdrawn and reopened more than once inspite of the political upheavals. The activities of the Company had a great share in stimulating the industrial and commercial potentiality of Bihar. It might possibly be assumed that the production of the export commodities has definitely and substantially increased during this period. The two centuries saw the growth of a vigorous commercial economy in Bihar, with crafts and craftsmen being an intrinsic and integral part of it and not just an extraneous appendage to it.

Now a word about the sources used in this study. A sizeable indigenous source material on the subject of craft is practically non-existent. Unlike some other regions of the country, Bihar was not so well defined geographically or linguistically, nor did it form the base of a separate kingdom for any length of time. Hence Bihar does not have any separate integrated account of its regional history either in Persian or any other language. It can also be reiterated that the sources in Persian that do exist, are not concerned with such aspects as trade, prices of commodities, industrial production, wages of workers. The overwhelming weight

of documentation on crafts originates from the European sources. Hence the starting point for any historians on the crafts of Bihar in the seventeenth and eighteenth century must necessarily be the viewpoint of the European officials in the East India Company establishments, and private accounts of individual travellers.

The prior concern of the European buyers naturally centred on securing enough quantities to supply the home markets. Thus, the main focus of the European records is on the prospects of trade, centres of production of different commodities, the prices in different areas, the financing of purchases etc. The Europeans were less interested in the internal organisation of any industry, except where its ramifications impinged on the smooth conduct of their trade. Thus although the craftsmen held a central position in the complex interrelationship between groups involved in the craft industries, the Europeans had little direct contact with him and took little notice of his situation in their writings. What information exists has to be gleaned from isolated and passing references. The accounts also tend to be one sided — a handicap a researcher can only be conscious of since it can not be remedied.

It is admittedly a formidable task to undertake an analysis of the crafts in the seventeenth and eighteenth centuries in Bihar from the European sources alone. But sufficient information is available in them to enable us to present an outline, even though not all questions can be answered. Of the various European

contemporary sources, the accounts of foreign travellers, and the eighteenth century records of the English East India Company contain a vast mass of details. Bihar was visited by Ralph Fitch (1583-91) Abdul Latif (1608), Edward Terry (1616-19), Mirza Muhammed Sadiq (1620), Palsaert (1628), Delaet (1631), Peter Mundy (1632), Marshall and Thomas Bowrey (both between 1668 and 1671) and others. The records like Letters to and from the Court of Directors and the Correspondence between the Council of Patna Factory and that of Fort William constitute an important group. They are invaluable for a study of the political and commercial activities of the Patna Factory of the East India Company. Valuable supplementary information can be gleaned from the Proceedings of Consultations of the Council in Calcutta, Consultations of the Select Committees and Committees for different years, Factory Records, Records of the Division of District of Bihar, Bhagalpur from 1771, Mazaffarpur from 1782, Purnea from 1770, Patna from Commissioners office, from 1811, Ranchi Commissioners office form 1795, Shahabad from 1781—all of which are available in the State Central Archives, Patna, Bihar.

I have sought to overcome the lack of information from indigenous sources and the fact that the craftsmen have not left any written record of themselves by various ways. I have extended the chronological as well as the area base of the sources employed drawing data from even before the 17th and later than the 18th

centuries. As a researcher of social science I do not feel apologetic for doing this, for societal changes in time and space are far more slow and follow separate dividing spans from the political areas.

I have also used the various categories of oral traditions such as caste names and titles, proverbs, folk tales, myths. These folk traditions are invaluable as substantive and corroborative evidence when used to bolster up other sources. A few reports and surveys available on the subject of caste have been consulted.[53]

This work has also sought to gain important insights into the craft technology and the craftsmen from the Patna School of Paintings or the *patna qalam.* (i.e. local style). This school flourished for about two centuries in Bihar between 1760 AD and the early years of the twentieth Century. The paintings portray the local artisans and craftsmen plying in their trade-carpenters sawing wood for making furniture of daily use; spinners spinning thread for making cloth; blacksmiths hammering red hot iron and making tools; a hawker measuring and selling cloth; a pedlar selling hardware objects such as knife, scissors, tongs, *karchul* (big spoon) etc., basket makers, thread makers, and a hundred other subjects of daily life which the artist had witnessed everyday in their life. The Patna school developed about 1770 as a result of the migration of certain *kayastha* artists from Murshidabad to Patna in

---

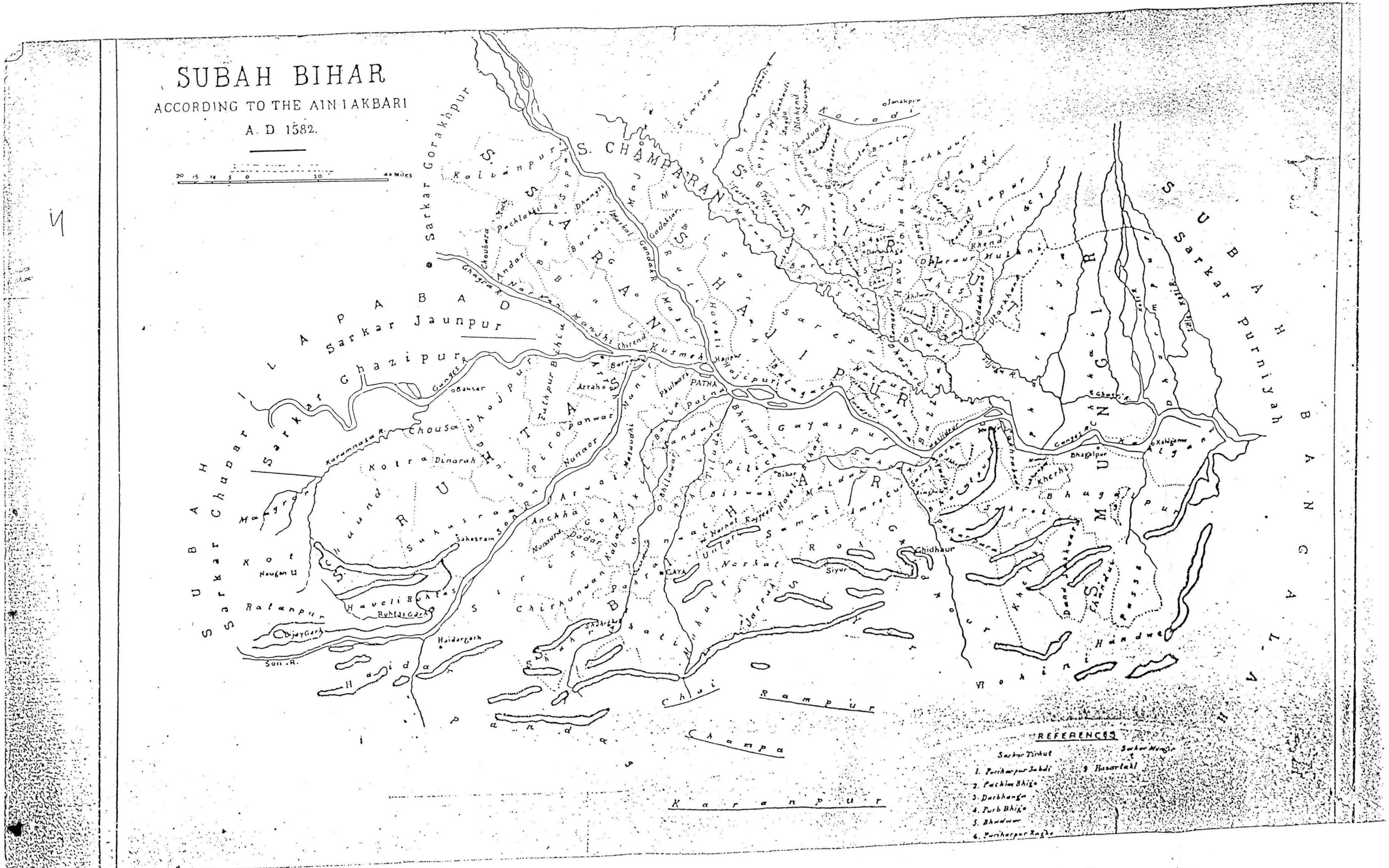
53 H.H. Risley, *The Tribes and Castes of Bengal*, vol. I, II, Calcutta, 1872; James Wise, *Race, Caste and Trades of East Bengal*, London, 1883.

search of new sources of livelihood. The Patna Museum possesses a considerable number of collections of the paintings of the school.[54]

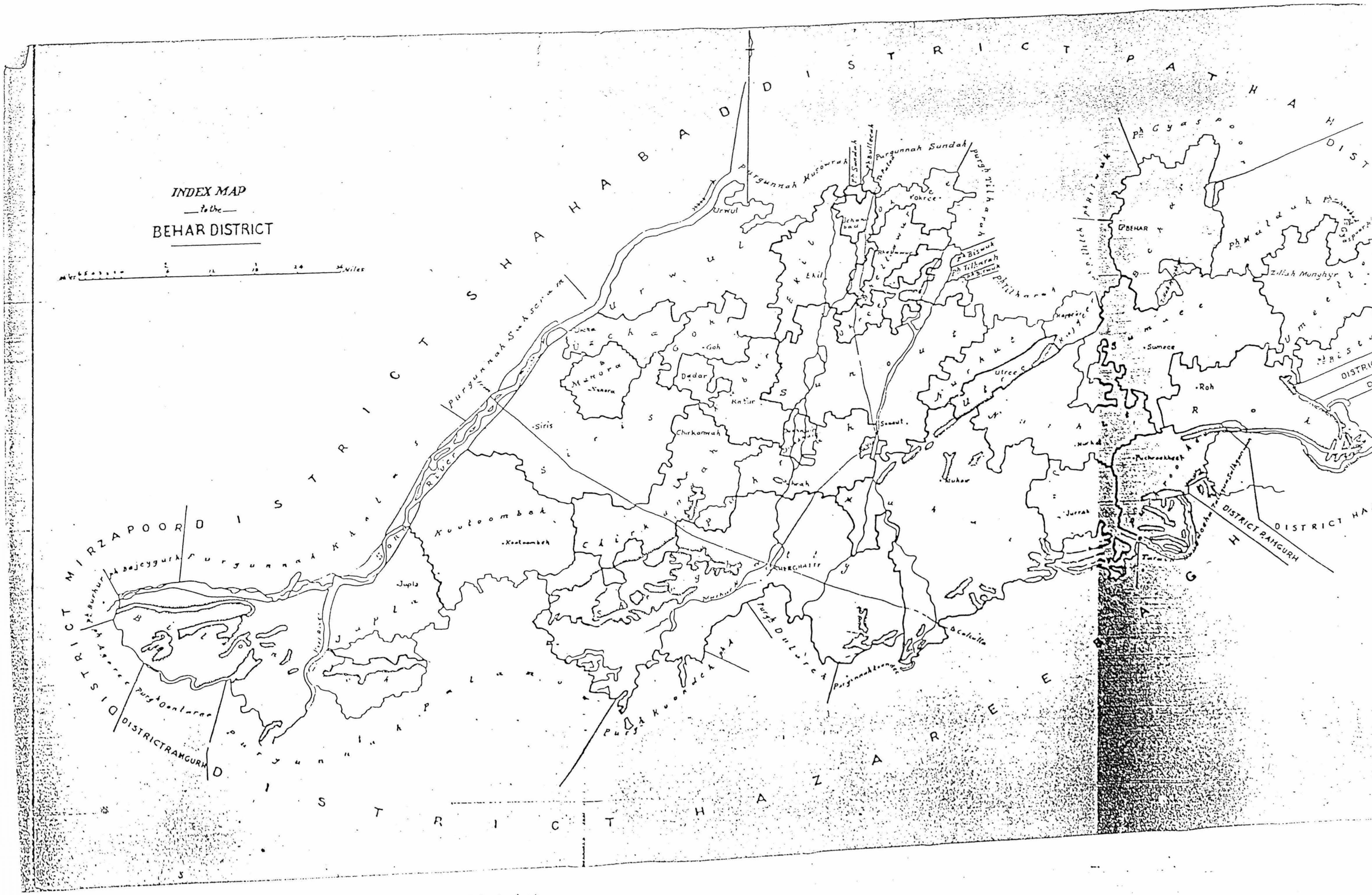
In making a reconstruction of the craft practices it has been the endeavour in this work to find modern evidence derived from present day craftsmanship. My field work in Bhagalpur (for silk weaving), Deoghar District in the Division of Santhal Pargana (for iron smelting), Araria district in the Purnea Division (for weaving and indigo vats) confirmed that craft traditions have persisted. It is from these elements of continuity that a holistic vision of the craft practices can be built up. This premise is based on the assumption that there has to be a distinct pattern of regional specialisation and systematic configuration of economic advantages, applicable for not just the seventeenth and eighteenth centuries but for all times.

---

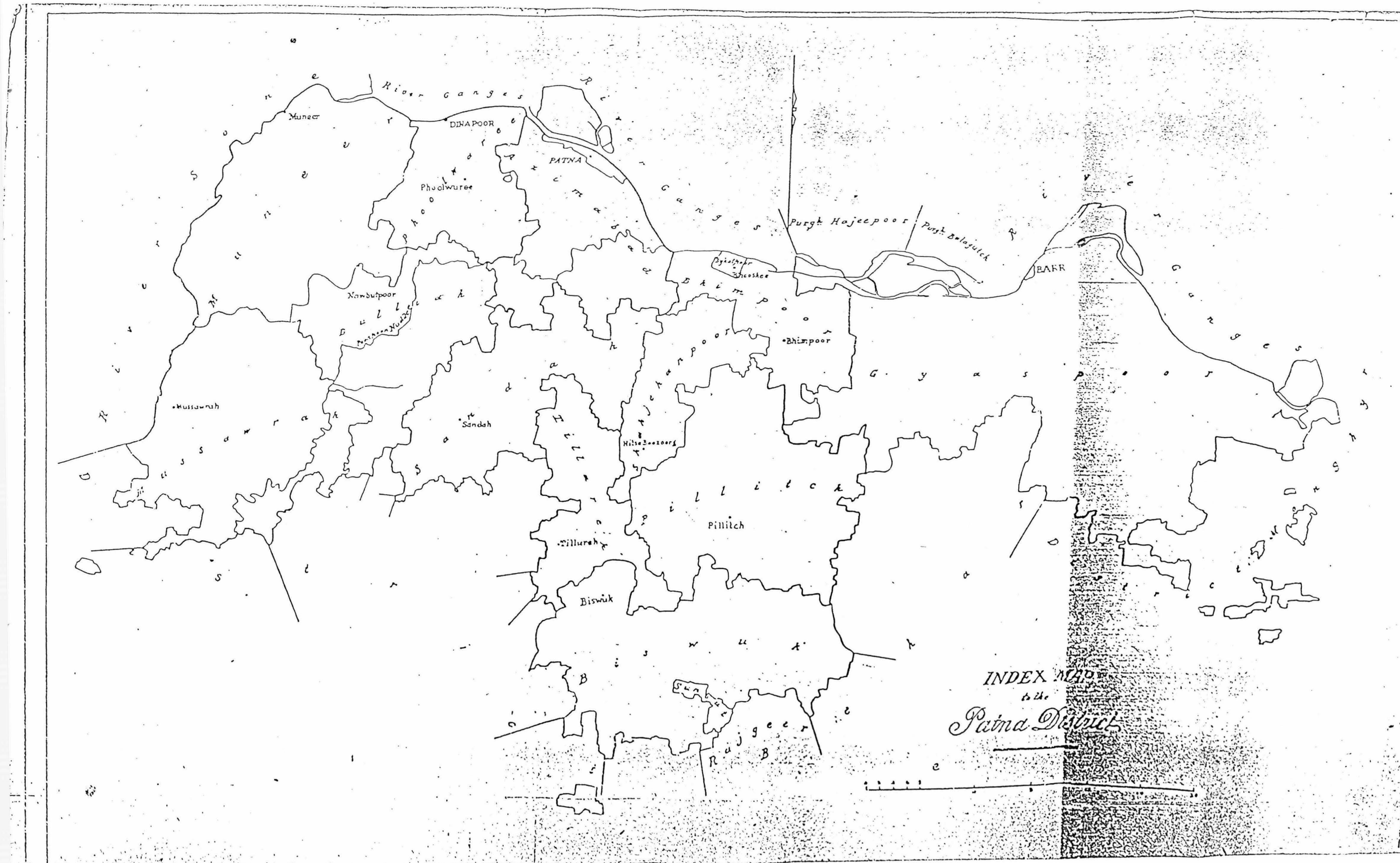
54 H.K. Prasad, 'The Patna School of Paintings', *K.P. Jayswal Commemoration Volume.*



Map I - Subah Bihar According to the Ain-i-Akbari A.D. 1582



Map 2 . Index Map to the Behar District



Map - 3 . Index Map to the Patna District.

CHAPTER II

BIHAR: GEOGRAPHY, HISTORY AND SIGNIFICANCE

The nature of the Bihar *subah*, its main landmarks, historical-cultural heritage and ethos needs to be delved into. The area constituting the present State of Bihar did not form a single political entity in the medieval period, and its political boundaries kept changing constantly. The geographical and political entity known as Bihar acquired this name only at the end of the 12th Century, when the invading army of Ikhtiyaruddin bin Bakhtiyar Khilji came upon a large number of monasteries (*viharas*)-the magnificent educational centres in Odantpuri, 60 miles south of Patna and Nalanda. The entire region got identified with the *viharas,* called *madarsas* (colleges) by Minhaj us Siraj, and thus got the name 'Bihar'. In the beginning the term "Bihar" came to be used in Persian sources to signify the territory south of the Ganga in the neighbourhood of Patna and Maner, as distinct from Tirhut or northern Bihar. During the Mughal period, the name was accepted for the entire *subah* on both sides of the Ganga, east of the river Karmanasha, West of Bengal and South of Nepal.

Though the name Bihar is only six centuries old, the history and heritage of the region extended over twenty-six centuries. The oldest part of it in legend and history is Videha, North of the Ganga and comprising Vaishali and Mithila, collectively known in the

Gupta records, as Tirabhukti and later as Tirhut. The name of Mithila is constantly referred to in the epics and *jatakas*. South of the Ganga, three tracts were distinctly identified. To the west was Karush (approximately Shahabad and part of Palamu district of today), in the centre Magadha (Patna and Gaya and a portion of Monghyr districts) and in the East Anga (Bhagalpur and part of Monghyr). Karush got absorbed in Magadha in course of time. Finally in the lower south where the plains end, the hills and plateau of Chota Nagpur were known in Ashok's time as *ativaka* and later as Jharkhand – the tract covered with jungle and peopled by the tribals.

The four tracts – Tirhut, Magadha, Anga and Jharkhand – became entities in different periods of history. They have subsisted since ancient times and correspond to the present administrative divisions. each under a Commissioner - **Tirhut** (Champaran, Darbhanga, Muzaffarpur, Saran); **Patna** (Gaya, Patna, Shahabad); **Bhagalpur** (Bhagalpur, Monghyr, Purnea, Santhal Parganas); **Chotanagpur** (Hazaribagh, Manbhum, Palamu, Ranchi, Singhbhum).[1] Such continuity of clearly defined territorial units is rare. It facilitated the crystallization of the cultural patterns and their mutual interaction resulting eventually in the emergence of Bihar's regional culture.

---

1 P.C. Roy Choudhary, *Inside Bihar*, 1962: 3.

Bihar was constituted as one of the fifteen *subahs* of the Mughal Empire by Akbar. The *subah* was divided into seven *Sarkars,* each subdivided into a number of *parganas,* in all totaling 199. The *sarkars,* and *parganas* are listed in the *Ain i Akbari* as follows: - Behar, Monghyr, Champaran, Hajipur, Tirhut, Rohtas which was later subdivided into two –Rohtas and Bhojpur or Shahabad.[2] The boundaries of the *subah* as given in the *Ain* remained substantially the same during the subsequent period but gained further specificity with the conquest of Central and South Western Chotanagpur in 1614 and 1640 respectively.

The first half of the eighteenth century (1707-1739) saw a major political transition in Bihar. With the decline of the Mughal Imperial authority, the separate identity of the *subah* was eroded. With the dismissal of Nawab Fakhruid Daula in 1734-35 Bihar came to be tagged on to the virtually independent principality of Bengal. After the Battle of Plassey (1756) both passed under the virtual rule of the East India Company.

Of the original seven *sarkars* of the *subah,* that of Bihar was the largest having a measured area of 9,52,598 *bighas* and also the highest *jama* of 380,196,390 *dams.* It constituted the heartland of the *subah* and spread over the fertile plain on the right bank of the Ganga. It covered the greatest part of the whole district of Patna

---

2 Abul Fazl, *Ain-i-Akbari,* vol. II, trans, H.S. Jarrret, revised by J.Sarkar, Calcutta, 1949: 165.

and Behar (Gaya) and the northern part of the whole districts of Hazaribagh, Ranchi and Palamu.

Sarkar Monghyr formed the eastern and south- eastern portion of the *subah* and covered the bulk of the area constituting the old Tirhut district. It also included some parts of the forest tract of Santhal Parganas towards the southeast. It was partly spread across the Ganga and included Bhagalpur.

The Sarkar of Champaran and Saran formed the northwestern portion of the *subah* and covered the area constituting the old Saran district before Champaran, was separated from it. In the case of Champaran, Gandak constituted a distinct natural boundary on the west and the southwest. The northern boundary of Champaran covered a considerable portion of the terai mountainous area now part of Nepal. Saran was bounded on the north by the Gandak and the south by the Ganga. Sarkar Hajipur covered a narrow strip between Burhi Gandak on the north east and Gandak and Ganga on the south west and the south. As such, it must have been a fairly extensively cultivated tract. On the north across the Burhi Gandak lay Sarkar Tirhut. It covered the great bulk of the old Kingdom of Mithila, with the traditional boundary on the south and east continued to the be Ganga and the Gandak. The northern boundary touching the tarai area, like that

of Champaran, is not very clear. The Sarkar Rohtas was bounded on the north by the Ganga, on the east by the Son, on the west by the Karmnasa and on the south by the Kaimur Hills.[3] The region was specially taken note of by the chronicles since it was a very fertile region, with high water table making irrigation easier.[4]

The pattern of agricultural production in seventeenth and eighteenth centuries in Bihar was indicative of a developing, growing regional economy. There was progressive extension of cultivation and a corresponding improvement in the state of revenue. On the basis of the *Ain i Akbari* (1594) and *Chahar Gulshan* (1720) Jadunath Sarkar calculated that the provincial total of measured land increased from 24, 44, 120 *bighas* in 1594 to 1, 31, 52, 845 *bighas*[5] in 1720.

---

3 Qeyammudin Ahmed, 'Historical Geography of Medieval Bihar', vol. 15, (1-2), *I.H.R*, 1976: 132; The eighteenth century work "Hadiqatul Aqalim", of Murtaza Hasan Allah Yar Khan (Oriental Public Library, Patna, M.S. copy), in Qeyammudin Ahmed, 'Historical Geography: 130-131, mentions the boundaries of the *Subah* of Bihar-the length of *Subah* from Rohtas to Garhi was 120 *kroh* and its breadth from Tirhut to the Southern mountains was 102 *kroh*. To the east of it Bangala and to the West Allahabad and Awadh. To its north and south are high hills." This description of the Bihar boundary is the same as *'Ain'* except for the crucial substitution of the word "Southern Mountains" for the word "Northern Mountain".

4 Abul Fazl, *Akbar Nama*, (ed.), Agha Ahmed Ali and Abdur Rahim, vol. II, Calcutta, 1828:243; Abul Fazl, *Ain*, vol. I: 417; Abdul Qadir Badayuni, *Muntakhab-ut-Tawarikh,* (ed.), Ali, Ahmad and Less, vol II, Calcutta, 1869:78;

5 Jadunath Sarkar, *History of Aurangzeb*, Calcutta, 1973.

Sarkars	**Areas in *bighas* in**	
	1594	**1720**
Bihar	9,52,598	67,09,647
Monghyr	-	12,78,698
Champaran	85,711	-
Hajipur	4,36,958	-
Saran	2,29,053	22,37,856
Tirhut	2,66,464	-
Rohtas	47,355	10,45,275
Shahabad	Not constituted as *sarkar*	13,81,368

From the village and area statistics of Aurangzeb's reign Irfan Habib calculated that the total measured area in *bighas* (*daftari*) was 1,27,53,156 and of the total of 55,376 villages, only 31,340 were measured.[6]

The *subah* of Bihar also registered a rise in the *jama* over the period from 1596-1750. The *Ain* puts the *jama* figures at 22,19,19,404 *dams* in 1595-96.[7] The sources from 1636 to 1656 record the revenue figures of the *subah* between 36 and 40 *krors*. The last *jama* figure in 1750 comes from *Dasturul Amal i Alamgiri* and estimated it at 54,53,00,335 *dams*.[8] The rise in the *jama* can

6 Irfan Habib, *Agrarian System of Mughal India*, Bombay, 1963:397.

7 Abul Fazl, *Ain*: 416-23.

8 The *Jama* figures from the contemporary sources are cited in S.H. Askari and Qayamuddin Ahmad (ed.), *The Comprehensive History of Bihar*, (hereafter *CHB*) vol. II, Part II, Patna, 1987: Appendix I, Table A, 528.

be explained by – an extension of the Mughal authority to new areas leading to the clearing of jungles and an increase in the cropped area. Also, there was possibly a change in the crop pattern. With the brisk commercial activities of European Companies in the second half of the seventeenth century, some extension in the cultivation of cash crops like opium, cotton and sugarcane may be presumed.

The rivers played a significant part in the development of Bihar's cultural and commercial patterns – which in turn triggered off the development and diversification of Bihar's Crafts. The Ganga has been an artery of commerce, a dividing line between the Northern and Southern portions of the plain and their cultures. While Ganga alone is steady, the other rivers like Kosi, Gandak, Son, Ghaghra, Punpun – are large rivers and (except for Son) flow over short distances that allow them no stretch to deepen their courses in steady channels. Floods and shifting channels have made the land a criss-cross of stray streams, abandoned watercourses, lakes and *chaurs*. The inconstancy of rivers other than Ganga is echoed in the refrains of the songs of sorrow and pathos woven around rivers like Kosi. It is not surprising that in North Bihar in particular, cities did not last long enough to grow into repositories of culture. The change of watercourse removed the source of their prosperity (as in the case of Vaisali) or the floods simply finished them. Thus over a large part of Bihar, it was in the villages that the finer and even the sophisticated forms of art,

literature and craft survived. The only exceptions were Patna, Gaya, Rajgir in Magadh and other commercial cities along the Southern bank of Ganga like Bhagalpur, Monghyr etc. Rural culture therefore occupied the central position in Bihar. Even the 1901 Census revealed that only 3.8% of the total population of Bihar lived in cities and 96.2% constituted the rural population.[9] In fact those who lived in cities would call their city houses a *dera* (a camp), the real "home" being in the village. Bihar's greatest treasure was thus the rural spirit, which has not been thwarted even after centuries. In Mithila, most of the seats of sanskrit learning have been in villages. In Mughal times 15 villages in Darbhanga district (eg. Mangrauni, Uchai, Pandaul etc.), 2 in Bhagalpur and 3 in Purnea have been mentioned as famous centres of learning. The growth of handicraft, art and culture revolved primarily around the village in Bihar.

Patna, the principal town of the *subah* of Bihar was the largest commercial town of Eastern India. From the earliest times Patna had a fairly continuous history as a centre of civilisation and economic importance.[10] It's importance declined after the fall of the Palas and it became a small town dependent on Bihar (i.e.

---

9 The 1901 Census revealed that there were only 62 Towns in Bihar, as against an overwhelming 72,008 number of villages. In a total population of 2,93,53,331 the rural population was 2,82,49,757 (96.2%) and the urban population was 11,08,574 (3.8%), *1961 Census Publication, Bihar*, vol. No. IV.

10 J.N. Sarkar, 'Patna and its Environs in the Seventeenth Century-A Study in Economic History', *Journal of Bihar Research Society,* (hereafter *JBRS*), vol. xxxiv, Part-I&II: 126.

Bihar Sharif) the seat of the local government of the Muslims.[11] Early in the sixteenth century the Italian traveler, Ludovice di Varthema (1503-8) represented Patna as one of the first cities he had hitherto seen where the richest merchants had assembled. According to him its principal exports were cotton and silk stuffs which were woven by men and not women, the country abounded in grain of every kind, sugar, ginger, and cotton; and was undoubtedly the best place to live in.[12] At the time of Sher Shah's transfer of the head quarters of the local government from Bihar Sharif to Patna in 1541, it was known as *Pattana* meaning the mart, a name indicating its commercial importance.[13] Abdullah, author of *Tarikh i Daudi* has described the foundation of the fort of Patna by Sher Shah. On his return from Bengal to Patna (1541) Sher Shah was standing on the bank of Ganges, when after much solid reflection and sage determination, he said to those who were standing by "If a fort were to be built in this place, the waters of the Ganges could never flow far from it, and Patna would become one of the great towns of this country; because this place is situated to the west, on the bank of the Ganges which flows from the North. The strength of the stream is broken, and it cannot advance

---

11 Abdullah, *Tarikli Daudi* (eds.), Elliot and Dowsan, vol. iv: 477.

12 Varthema, Cited in Jagdish Narayan Sarkar, *Medieval Bihar Economy:* 46.

13 J.N. Sarkar, 'Patna and its Environs' 126; J.N Sarkar, 'The Cotton Trade of Patna in early 17th Century', *Indian Historical Quarterly,* (hereafter *IHQ*) XII: 638ff.

towards the North."[14] Patna, enjoying the protection of the fort, and getting the advantage of the river, soon grew to be one of the largest cities of the province and Eastern India.

Forty five years later the English traveller Ralph Fitch (1583-91), observed (1586) that the region on both sides of the Ganges from Banaras to Patna contained "many fair towns" and was "very fruitful". He also found "Patanaw is a very long and great towne" with "very large" streets, with "a trade of cotton and cloth of cotton, much sugar, which they carry from hence to Bangala and India (i.e. Indian archipelago), very much opium and other commodities."[15]

In the beginning of the seventeenth century Patna was described as "a very fertile Province" by Edward Terry (1616-19) the English chaplain of Sir Thomas Roe.[16] John de Laet, the Flemish geographer and a director of the Dutch East India Company (1631), was struck with surprise at the "enormous quantity, and variety of merchandise in the town" of Patna.[17] Sebastian Manrique (1629-43) has given a graphic description of Patna. He notes "the city is

---

14 Abdullah, *Tarikh Daudi*: 477-78.

15 *Ralph Fitch, England's Pioneer to India and Burma* (1583-91),(ed.), J.H. Ryley, London, 1899: 109; also printed in W. Foster (ed.), *Early Travels in India 1583-1619*, London, 1921: 22-24.

16 W. Foster (ed.), *Early Travels in India:* 295.

17 John de Laet, *The Empire of the Great Mogol: translation of DeLaets Description of India and Fragment of Indian History*: trans. J.S. Hoyland and S.N. Banerjee, Bombay, 1928: 13.

populous, that it contains over the two hundred thousand inhabitants. (in 1641) The city is so great that it contains over six hundred brokers and middlemen who are engaged in the profession.[18] De Graaf described Patna, "From one end of the town to the other, throughout the whole of its length, stretches a large street full of shops where a great trade in all kinds of things were carried on and where were to be found very clever workmen".[19] In 1663 Manucci found Patna to be "a very large city with bazaars, the greater part thatched, inhabited by many merchants."[20] Jean de Thevenot (1665-67) wrote about the plentiful production of corn, rice, sugar, ginger, long pepper, cotton and silk with several other commodities in Patna.[21] Bernier (1665-68) says that "Patna or Beare" had 8 *sarkars* and 245 *parganas* yielding 95 lakhs 80 thousands rupees.[22] In December, 1665, Tavernier found Patna to be "the largest town in Bangal and the most famous for its trade" and "one of the largest towns in India and it is "not less than two *kos* (4 miles) in length."[23] The distinct reference to atleast three

---

18 Fray Sebastian Manrique, *Travels of Fray Sebastian Manrique* (1628-41), trans. C.E. Luard and H. Hosten, Hakluyt Society, 1927.

19 De Graf, *Voyages*: 62ff.

20 Niccolao Manucci, *Storia do Mogor*, trans. William Irvine, vol. II London, 1907-8: 83.

21 Jean de Thevenot, *Indian Travels of Thavenot and Careri*, (ed.), Surendra Nath Sen, vol. III, New Delhi, 1949.

22 Francois Bernier, *Travels in the Mogul Empire 1656-68*, trans. A Constable, London, 1891:186, 457.

23 Jean Basptiste Tavernier, *Tavernier's Travels in India* (1640-67), trans. V. Ball, vol. II, London, 1889: 121-22.

golas, four *sarais* and one *chauki* (toll station) suggests that the whole area from Mokamah to Patna was fairly prosperous.

The earliest non-European traveller to Patna, Abdul Latif (1608) refers to Patna in laudable terms. He refers to the spaciousness and good appearance of Patna in which it resembled Ahmadabad, the best of the cities of Hind. "Food and clothing are two or three times cheaper as compared to other places; many traders and comfort loving men have chosen it for their home. In no other city of India can be seen so many men of Iraq and Khurasan, as have taken up their residence here."[24]

While Patna constituted the heartland of the *subah,* there were other important towns and cities in Bihar like Munger, Bhagalpur, Purnea, Saran, Hajipur, Singhia, etc. About Bhagalpur, which was intersected by the Ganges, which divided it in the two parts, Al-Bahbahani (1809-10) writes that it was a populous and prosperous city. It was an important centre of trade in cloth which was highly in demand in Rome (Europe), Baghdad and Basra. Bahbahani says that such cloth was available here in plenty and was carried by traders to distant areas.[25] Cotton and

---

24 The account of Abdul Latif is not longer available to us in original, but is partly translated into English and published by Sir Jadunath Sarkar. J.N. Sarkar, 'Travels in Bihar' *Journal of Bihar and Orissa Research Society,* (hereafter *JBORS.*), vol. V, Part 4: 569-603. Incidentally, Ahmadabad was the home town of Abdul Latif, and hence his praise for it.

25 Ahmad al-Bahbahani, *Mirat i Ahwal-i Jahan Nama,* Patna University Library, *m.s* copy ff.270-71, cited in Imtiaz Ahmad 'Foreign Travellers Observations on Bihar: A Comparative Estimate' in Askari, Q. Ahmad, (ed.) *C.H.B* vol. II, Part II: 563.

indigo were grown largely and were of good quality. *Kusum* or safflower for dyeing was an important object of culture, as was the jujube, being used as food for the lac-producing insect. Iron mining and smelting was carried on. The principal manufacturing crafts were cotton and silk spinning, weaving, dyeing and silk winding. John Marshall gives a vivid picture of Bhagalpur which he described as a big town containing thatched houses. He notes that at Bhalgalpur 26 copper coins or *paise* were equivalent to a rupee, (though according to Hobson-Jobson 80 *paisas* constituted a rupee in 1673). This shows that the value of *paisa* at the time when Marshall visited Bhagalpur was much higher.[26]

Munger too was a thriving town and invited the comments of the travellers. Bahbahani informs that Munger had a large population of traders. It was an important centre of woodwork. He writes about the *saal* wood of the area which was very hard, durable and of pleasing colour. Boxes and chairs and other furniture were made of this wood with great care and neatness. They were carried to neighbuoring areas. Bahbahani also calls Munger a grand town (*qasba-i-ba shikoh*) and speaks of its strong fort and a deep moat surrounding it. He laments that since the English did not wish any other city, except Calcutta, to flourish, Munger is in a state of decay on account of negligence.[27] Abdul

---

26 Shafaat Ahmad Khan (ed.), *John Marshal in India, Notes and Observations in Bengal,* 1668-72, London 1927: 149*ff,* 121.

27 Al-Bahbahani, *Mirat-i Ahwal*: ff 271-73. For a description of Monghyr also see C.E.A.U. Oldham, 'An Old description of the Monghyr Fort,' *Bengal, Past and Present,* (hereafter *B.P.P.*) vol. 27, No. 54, 1924: 159-60,

Latif also refers to Munger as 'a large town', with a fort strategically located, 'midway, between Bihar and Ghati, the gateway of Bengal'.[28] W. Hodges has described Munger as a large Indian town with an old fort. One side of the fort is flanked by the Ganges and the side to the land by a wide and deep ditch.[29] Munger also had a great number of manufactories and shops, for the fabrication and sale of hardware and firearms, but of execrable quantity.[30] Buchanan estimated the population of Munger at 30,000 persons.[31]

Purnea was situated on the banks of little Kosi and occupied both sides of the river. It was skirted or intersected by Ganges, Gogree, and the Mahanada. Indigo was the principal commercial crop. The mulberry trees were in the time of Buchanan confined to three small divisions of southeast corner of the district, but there the number was very great. The chief exports of Purnea were coarse cotton fabrics, silk, indigo and grain. Cotton was imported from Mirzapur and other places lying in the west. Buchanan observed of Purnea. "This town which occupies a space equal to

---

28 J.N. Sarkar, 'Travels in Bihar': 600.

29 W. Hodges, *Travels in India*, London, 1793: 29.

30 Edwaward Thornton, *A Gazetteer of the Territories under the Government of the East Indies and of the Native States on the Continent of India*, First published 1858, Reprint 1984: 625.

31 Francis Buchanan, *An Account of the District of Bhagalpur (1810-11)*, Patna, 1939.

more than half of London, most assuredly does not contain 50,000 people, though it is one of the best country town in Bengal."[32]

Besides cotton, chintz, carpets and silk goods Bihar was an important production centre for many other exotic and utilitarian commodities. The correspondence of Ram Narain and Muhammad Yar Qalandiri refers to some scientific goods requisitioned from Patna and sent to Murshidabad—*durbin* (telescope), *usturtab* (astrolobe, brought from Lahore and also made at Patna), *ainak* (eye-glasses) and *taghar* (couldron).[33] Abul Fazl refers to Rajgir, in the *sarkar* of Bihar, as a centre of manufacture of good paper.[34] Other paper manufacturing centres were Bihar Sarif itself with its *kaghazi mohalla*, Mehsi in Motihari district, and Arwal in Gaya district. Arwali *kaghaz* was used for writing manuscripts. Buchanan has left an account of the manufacture of paper in the early 19th century.[35] Near Rajgir and Gaya there were quarries of stone resembling marble, of which ornaments were made.[36] The black stone *masnad* of the Nawab Nazim of Bengal, Bihar and Orissa, was made at Monghyr by Khwaja Nagar of Bokhara in

---

32 Buchanan, *An Account of the District of Purnea, (1809-1810)*, Patna, 1918.

33 Jagdish. N. Sarkar 'Economic life of Bihar 1526-1757' in Askari, Q. Ahmad *C.H.B*, vol. II, Part II: 427.

34 Abul Fazl. vol. II: 164

35 Buchanan, *An Account of the District of Behar and Patna (1811-1812)*, vol. II, 1939, Reprint 1986, Patna: 623.

36 Abul Fazl, *Ain.* vol.II: 164

1743.[37] Abul Fazl observed that boats were procurable in plenty in Bihar, which furnished about 100 boats. At Rajmahal port Manrique found over 2000 boats assembled from surrounding districts. There were various types of boats, which were either utilized for purpose of war or trade. Daud Khan Quraishi, Governor of Bihar (1659-63), purchased during Mir Jumla's war with Shuja, several boats from the local *majhis* (boatmen) and equipped them with artillery and gunners and crossed the Ganges with a bridge of boats. Usually, saltpetre was carried from Patna down to Hughli and Balasore or Pipli in various types of country craft known as *pattelas, boras, purgoes, palwars* etc, and partly also in sloops and pinnaces maintained by the English and Dutch Companies on the river. Alexander Hamilton (1688-1723) observed that the Hughli-Patna saltpetre *purgoo* boats were over 50 yards long, 5 yards broad and 2½ feet deep and had a capacity of over 2000 tons. The necessities of saltpetre trade served as an incentive to boat construction under the patronage of East India Company.[38]

The *Dasturu'l Insha* refers to certain forms of carriages and utensils which were requisitioned by Murshidabad from Patna: Among carriages were: *chaupal* (a covered Sedan or litter), *mahafa*

---

[37] *Ibid:* L.S.S. O' Malley, *Bihar and Orrisa Districts* Gazetteer *Monghyr,* Patna, 1926.

[38] For the manufacture and description of boats- Abul Fazl, *Ain,* vol. II: 164. 165; Manrique, *Travels of Manriqure,* 135; of Thoms Bowrey, A *Geographical Account of the Countries round the Bay of Bengal, 1669-1679,* (ed.), R.C. Temple, Hakluyt Society, 1905:221; Jadish Narayan Sankar, *Economic Life in Mughal India:* 301-2.

(a kind of litter in which women travel), *bahal* (two wheeled cart) for riding, not for carriage, *chakra* (carriage cart). Among utensils were *tabaha i itriyat* (large wooden dishes or trays) for distributing various kinds of perfume and scents.[39]

Manucci found Patna to be a centre of manufacture of bottles and fine earthen pottery, including 'cups of clay finer than glass, lighter than paper and highly scented'. The earthenware manufactures in general emitted a pleasant odour and was so fine that they were not 'thicker than paper'. Such articles were not only used by the nobles, but also sent to the courts as 'a rarity' and as curiosities were 'carried all over the world'. Minapore, near Hajipur, was also a pottery centre. A piece of fine 'earthen ware' weighing only $1.^{1/8}$ *oz.* could hold 18-*oz.* water. 'Finer and lighter' earthen goods were manufactured at Begumsurra (Begusarai).[40] Bihar was a centre of production of glassware. Abul Fazl states that gilt glass was manufactured in Bihar.[41] The craft continued and early in the 19th Century, Buchanan found 320 families of glass workers (*churisaz*) in Bihar.[42]

---

39 Jadish N. Sarkar, 'Economic Life of Bihar 1526-1757': 429

40 Manucci, *Storia*: vol. II: 426, 484, Shafat Ahmad Khan (ed.), *John Marshall in India:* 414.

41 Abul Fazl, *Ain*, vol. II: 164,152.

42 Buchanan, *Patna Gaya:* 621.

As a thriving centre of manufacture and trade in items like textile, saltpetre, indigo, salt, carpet, pepper, Bihar attracted merchants of different nationalities. The records of the first half of the seventeenth century refer to Portuguese, English, Mongoles, (Mughal i.e. Persians, Central Asiatic and N.W. Frontier merchants), Pathan, Armenian and Indian merchants including East Bengal traders (Praychaes). Tipperah merchants purchased from Patna Tortoise shell and seashell bracelets, besides coral and amber goods.[43] The Pathan traders brought *sahans* from Lower Bengal. Peter Mundy found Armenians at Patna in 1632.[44] Manucci saw an Armenian merchant Cojah Safar (Khwaja Safar) of Agra, bringing a bill of exchange for Rs.25, 000 on a local shroff.[45] Armenian merchants and others, who travelled in the countries from Tartary to China and carried on musk trade, annually passed through Patna to Hughli. Tavernier met four Armenian merchants coming from Danzic at Patna and going to Bhutan to sell images of yellow amber. Tavernier refers to the trade between Patna and Bhutan *via* Gorakhpur. The merchant of Bhutan arrived at Patna to sell their musk[46] The English East India Company's records refer to Bihar, along with Malda, Qasimbazar, Dacca and Jugdea,

---

43 *Tavernier, Travels in India*, vol. I: 262,

44 Peter Mundy, *the Travels of Peter Mundy*, vol. II, *Travels in Asia* 1628-1634, (ed.), R.C. Temple, Hakluyt Society, 1914:159.

45 Manucci, *Storia*, vol. II: 84

46 Tavernier, *Travels*, vol. II: 258-9, 259-60, 261-3

as an important inland market for the sale of the Company's imported goods.

The exigencies of commerce of Patna, inland and foreign, led the Mughal government to make suitable arrangements for controlling and regulating its volume and direction and realizing customs revenue. In fact Patna was one of the four ports (*bandar*) which the Mughals set up for the purpose of Eastern India: Hughli or *bakhshbandar* for realizing duties from external trade, Dacca (*shahbandar*), Murshidabad (*pachotrabandar*) for collecting duties from internal commerce of Eastern and Western Bengal respectively, and Patna (*buzurgbandar* or *budrakabandar* of East India Company's records) for collecting duties from internal and interprovincial trade.[47] However Tavernier made unfavourable remarks on the prevalence of corruption in the working of the custom office at Patna, the officer being corrupt. Tavernier comments that the importance of Patna as an inland port grew as that of Rajmahal declined on account of changes in the course of the Ganges[48]: He says "Those (merchants of Bhutan) who returned by Gorakhpur and have an understanding with the custom officer, take from Patna and Dacca coral, yellow amber, tortoise-shell

---

47 Abdul Karim, *Murshid Quli and his Times*, 1963: 212-13. Tavernier, *Travels in India*, vol. I: 125. 121-13.

48 Tavernier, *Travels in India*, vol. I : 125.

bracelets and other of sea-shells with numerous round and square pieces.[49]

To facilitate a thriving trade in Bihar a large number of *sarais* were built on all important routes and commercial centres to provide rest and halting to merchants. In Bihar and particularly on the Agra-Patna route, their number was very large. Mundy refers to Saif Khan's *sarai* at Patna as the best *sarai* in India were merchants of all nations stay.[50] Marshall noticed at Burhjangal enroute from Rajmahal to Patna , a *sarai* having 200 rooms , each room having the capacity to accommodate four persons. In all 800 persons could stay in that *sarai* on a payment of one *pice* (rupee of 28pices) for a room of four per night. Marshall also refers to four *sarais* between Mokamah and Patna.[51]

The extent of the commercial activities in and through the *subah* of may be gauged from the fact that number of coins issued from the Patna mint was larger than that of all the mints of Bengal put together. Up to 1665 it was the largest mint of the region.[52] This was due to the influx of a large amount of silver into Bihar as a result of brisk trade. For example, in 1682, the amount of

---

49 *Ibid,* vol. II: 258-29.

50 Peter Mundy, *Travels.*

51 Shafaat Ahmad Khan (ed.), *John Marshall in India:*

52 Aziza Hasan, 'Mint of the Mughal Empire', *POIHC,* 29th Session, Part I, 1967: 327-30.

treasure sent to the English factory at Patna was 7601 pounds sterling, while the amount in goods was equivalent to 824 pounds only.[53]

Bihar was not without an enterprising entrepreneurial and incipient capitalist class. The nobles like Governor Muqarrab Khan during the reign of Jahangir and Governor *Nawab* Ibrahim Khan during the reign of Aurangzeb indulged in private trade and amassed huge fortunes, which they utilized in extensive commercial pursuits. The *shroffs* (sarrafs), *mahajans* (moneylenders) and *banias* played an important part in the mercantile and money lending activities of Bihar. Some of the *shroffs* were well known and their business activities had developed in the early years of the 17th century quite independently of the European commercial penetration into Bihar. The *shroffs* in whose names the Agra factors used to send bills of exchange (*hundi*) are mentioned in the English Factory Records. The English factors at Patna (1620-21) considered Chaunsye Shaw (Chand Sahai Sao) to be the most important, "current, dealer of Puttana and advised the Agra factors to deal with his son who was a *shroff* at Agra for manifest advantages.[54] There were also firms of rich

---

53 Ahmad Raza Khan, 'A Brief Survey of Trade and Commerce in Bihar in 17th Century', *POIHC*, 1978: 474; also Sushil Chandhari *Trade and Commercial Organisation in Bengal 1650-1720*, Calcutta, 1975: 213.

54 *Indian Antiquary*, vol. *X LIII*: 99-100

merchants, moneychangers or bullion brokers who exercised an effective control over business activities. The names of some firms who handled remittances of English funds from Hughli to Patna in 1705 are mentioned in the English Records.[55]

Name of Remitter (Hughli)	Agency at destination (Patna)	Amount in Rs.
1. Fateh Chand and Anand Chand.	Mannickchand Ramchand	20,000
2. Lalji or Lalaji and Brajabhusan	Sadanand or Laljee	20,000
3. Shiva Dutt or Sheo Dutt and Mitra Sen	Sukhdeva Saha and Shiva Dutt	10,000
4. Hemmat Singh Lakshman Singh	Kishore Shah Maneshwar Nath	10,000

The joint names of these firms seem significant and indicate private partnership.

There were certain merchants who held monopoly of articles like opium and saltpetre. During the middle of the 18th Century Khwajah Wajid, an Armenian merchants of Hugli and Chandernagore famous as *fakru't tujjar* or chief of the merchants held monopoly of saltpetre in Bihar till 1758. Omnichand was another wealthy merchant with an extensive network of business activities in Bengal and Bihar in saltpetre cloth, etc. [56]

---

55 *Consultations*, 3,4,16th April, 24th August, 23 September, 19th October, 1704: in Abdul Karim, *Murshid Qulik Khan: 234; B.P.P.* vol: LXXIX: 42-55.

56 H.N. Sinha (ed.), *Fort William-India House Correspondence*, vol. II, 1764-66, National Archives of India (Indian Record Series) Delhi, 1962.

The banking house of Jagat Seth had its branches in Patna besides Delhi, Benaras, Dacca, Calcutta and Hughli. Hirananad Shau who came to Patna in 1652 from Nagar in Marwar was a prominent banker and businessman. He had both a flourishing business and banking houses not only in Patna but also in Murshidabad, Dacca and other places. He became a *nagar seth* in 1714.[57]

The seventeenth and eighteenth centuries saw the heyday of the East India Companies. They became a part of the politics and economy of Bihar. The craftsman – spinners, weavers, washers, dyers, indigo and saltpetre manufactures, metallurgist-and the merchants had their links with the Company factories. The activities of the European companies had a great share in stimulating the industry and commercial potentialities of Bihar.

The earliest European traders to enter Bihar were the Portuguese. They were found to be already in possession of the field by the earliest English factors at Patna who observed (Nov. 30, 1620). "The Portingalls of late years have had a trade here in Puttana. Every year their frigates came from Malacca and Cochin to their two ports, Hugli and Pipli, where they had been licensed by Jahangir to inhabit, and thence they came up to Patna, laden with tin, spices, China wares, and returned with *ambati* Calicoes,

---

57 N.K. Sinha, *Economic History of Bengal*, Vol I: 13, 132-3; *House of Jagat Seth, BPP, 1921.*

khassa (Muslin), all sorts of thin cloth (dyed red for the specific purposes of selling them in the south), silk and coarse Jaunpur carpets. It took 5 or 6 days to come down from Patna and about double the time to sail up."[58] This trade must have been adversely affected by their expulsion from Bengal (Hugli) in 1632.

The arrival of the Dutch at Patna coincided with the expulsion of the Portuguese from Hughli. Having established themselves in Pipli (1627) and Balasore in Orissa, the Dutch came to Patna in 1632. The Dutch were at first the most formidable opponents of the English Patna, Chinsura, (1653), Kasimbazar became "the centre of an exceedingly prosperous and profitable trade" for the Dutch. However, the pattern of Dutch trade was different in some respects from the British. The Dutch were more interested in saltpetre and opium (and also borax) than in cotton and silk goods. Tavernier who visited Patna on 21 December 1665, writes: "The Dutch Company has an establishment there on account of the trade in saltpetre, which it refines at a large village called Chapra, situated on the right bank of the Ganges, 10 *cos* above Patna. Arriving at Patna with Bernier, we encountered some Dutchman in the street who were returning to Chapra...[59] Bernier (1665-1666) also mentions that the Dutch exported "a prodigious

---

[58] W. Foster, (ed.) *The English Factories in India* 1618-21, (hereafter *EFI*), vol. I, Oxford, 1906-27: 191-96, 213-214; *Peter Mundy, Travels*, vol. II: 362, 366.

[59] Tavernier', *Travels in India*, vol. I: 122.

quantity" of saltpetre from Patna.[60] In September 1675 Streynsham Master found on his arrival in Bengal that there were then six Dutch factories under the Directorate of Bengal, Patna being one of them.[61] The eighteenth century historian of Patna, Ghulam Husain Khan Tabatabai, author of *Siyarul Mutakhkhirin* writes that the "Hollanders had a factory at Azimabad (founded in 1774-75), a house of great beauty and vast extent, nor was it quite destitute of strength, being furnished with canon and men." It was captured by the British in 1781, restored to the Dutch in 1784 and finally ceded to the British in 1824-25.[62] By the beginning of the eighteenth century the Dutch carried on brisk trade in Patna, Daulatganj, Chapra, Singhia, and Hajipur in Bihar, besides Chinsura and Kasimbazar, Dacca and Malda in Bengal. The Dutch power began to decline in Europe in the latter half of the seventeenth century and it came to be reflected in the gradual recession of their position in India in the eighteenth century. The English outstripped the Dutch in the Bengal trade after securing a *farman* from Farrukh Siyar in 1717. The Dutch lost their pre-eminence in the saltpetre market in Bihar soon after 1757.[63]

---

60 Bernier, *Travels in the Mughal Empire*: 440.

61 R.C. Temple (ed.), *The Diaries of Streynsham Master, 1675-1680, and Other Contemporary Papers relating thereto*, vol. I, London, 1909.

62 R.R. Diwakar, *Patna through the Ages* 1959: 75.

63 Sukumar Bhattacharya, *East India Company and the Economy of Bengal 1704-40*, London,1956: 79; N.K. Sinha, *Economic History of Bengal*, vol. I. 53, 56-9: J.N. Sarkar, *History of Bengal*, vol. II: 419.

The first English factory was established on an experimental basis at Patna under Robert Hughes and John Parker in 1620 for the purchase of cheap and excellent local piece goods of calicoes and for working the raw silk (available from Bengal) into suitable skeins. Marked an important phase in England's "Quest of Eastern Trade."[64] The Patna factory in 1620 was a part of the attempt of the East India Company traders to reach the rich Bengal market overland through North India.[65] This synchronized with the setting up of factories in other parts of India. Thus apart from Surat and Masulipatam which were the permanent footholds for English commerce in India, factories were extended to Ahmedabad, Cambay, Baroda and Broach and other places in Gujrat and Agra, with subfactories in 1620 at Lahore and Samana. Almost all these places were either important centres of production of calicoes or bleaching or distribution. Patna occupies no very inferior position among these places.[66] However the Patna factory was closed in September 1621. The devastating fire at Alamganj (where the English factors were housed) on March 24, 1621 and the departure of Muquarrab Khan, the liberal Governor of Bihar, a good and prompt paymaster, dampened the ardour of the factors. The factors, felt themselves, "altogether destitute" with the appointment of Prince Parwez as the new Governor. The latter's demand of

---

64 W. Foster, *England's Quest of Eastern Trade*: 314-15.

65 N.N. Raye, *The Annals of Early English Settlement in Bihar*, Calcutta 1927: 24-26.

66 J.N. Sarkar, 'The Cotton Trade of Patna' *IHQ*, vol. xii: 638ff.

money from "the merchants, brokers, shopkeepers etc. of the city", so troubled them that "none dared be seen to sell a *pice* worth of goods."[67]

Another attempt was made by the English to establish a factory at Patna in 1632, when the prospect of trade in Gujrat were seriously affected by the devastating Gujrat famine of 1630-31.[68] Peter Mundy (1632) found Patna to be the most important commercial emporium of the entire region. "It is the greatest mart of the all this countries, from where they repaire from Bangala that way to the sea-side, and from Indostan and other inland countries round about, plentiful in provisions abounding with sundrie commodities."[69] Mundy reached Patna in September 1632, accompanied by an Indian broker, to sell eight cartloads of barrels of quicksilver, and parcels of vermilion and to invest the proceeds in purchasing suitable articles of trade. This attempt, too, failed after two months.

After the failure of the first commercial mission to Patna (1620-21) under Hughes and Parker and of the second mission under Mundy (1632) there is no evidence of an immediate opening up of fresh contact by the English with Patna.

---

67 W. Foster, *EFI*, 1618-21, vol. I: 256-259.

68 *Ibid:* 259, 256.

69 Peter Mundy, *Travels*, vol. II: 157.

In the middle of the seventeenth century, Patna rose to worldwide importance as a source of production and supply of sugar and saltpetre, then in great demand in Europe as the principal ingredient for the manufacture of gunpowder[70]. In their letter of 28th January 1659, the company gave saltpetre the place of honour among the merchandise to be provided, and decided to send to Patna £ 5,000 a year for purchasing it. It could be brought at prices 40 or 50 percent cheaper at Patna than at Hughli.[71] In 1651, the English East India Company set up a factory at Hughli and trading agency at Patna. However, they had to reckon with the oppression of local officers. In 1657, the English established a permanent factory at Patna. The Patna factory was placed under the Bengal Agency, the other factories being Hughli (the chief station) Balasore and Kasim bazar.[72]

---

70 Jagdish Narayan Sarkar, 'The Saltpetre Industry of India.'

71 W. Foster, *EFI*, vol. X: 275.

72 The place of Patna among the Company's other factories and settlements may be clear from the following–

1633 — Pipli, Hariharpur (Mahanadi Delta), Balasore.

1651— Hughli (Ganges delta)

1657 — Patna (for Saltpetre)

1658 — Singhiya

1658 — Kasimbazar

1668 — Dacca.

— Rajmahal and Malda

1690 — Calcutta

In the beginning of the eighteenth century the Patna factory (as well as Balasore, Malda , Dacca ,Calcutta, and Kasimbazar) was under the jurisdiction of Fort William, then recognised (1700) as their seat of Presidency, independent of Madras. As a result of the execution of Aurangzeb's *farman* of 1701 interdicting European trade in India, Patna factory was once again closed in 1702. After passing through several vicissitudes, on account of obstruction by local officials, prolonged friction between the government of Bengal, Bihar and the English, the Patna factory was re-established in August 1757.[73] The reasons given by the Fort William Board in their letters to the Court of Directors to justify the proposal for the re-establishment of the Patna factory in 1752 throws light on Patna's commercial importance. Among the advantages mentioned were the prospects of selling the Company's imports at a "greater advantage." Than at Calcutta during the first few years, and of providing "Saltpetre and Patna cloth" on more reasonable terms, especially as the Governor was favourably disposed. [74]

It is abundantly clear that the *subah* of Bihar in the seventeenth and eighteenth centuries was a thriving state for inland or interprovincial trade and a center for international trade-

---

73 For the political convulsions seen by the Patna factory see. Ray, *Annals of the Early English Settlement*: 65-73.

74 H. Sinha, (ed.), *Fort William–Indian House Correspondence*: 1757-59, Dehi, 1957: 11, 21-22, 62, 101, 138, 241-43, 271-72, 473. *Correspondence from Court*: 25.3, 1757, 3.3, 1758, 8.3, 1757, 23.3, 1758. *To court*: 20.8, 1757: 10.1, 1758.

Asiatic, European and African. The land was rich. The central location of Patna on the confluence of three great rivers, Ganges, Gandak and Son, flowing in from the north as well as the south, made Patna a distributing centre, at a time when river transport was cheap and popular. It was connected with up country towns like Agra, Allabhabad, Banaras, Delhi and Lahore on the west by river and land routes and so with the general system of overland traffic to Central Asia, West Asia and Africa (including Egypt). It lay on the route from Agra to Chatgoan, the port of Bengal and was connected with other ports of Bengal like Tanda (i.e. Gaur), Hugli, Kasimbazar etc. It also traded with Orissa, including Puri and Balasore. Thomas Bowery (1669-79) did not exaggerate the commercial importance of Patna when he observed. "This is a country of very great Trafficke and commerce, and is really the great gate that openeth into Bengal and Orissa. From the Northern Kingdom or Empire (by land) visit (traders) of Persia, Cammania (Kirman), Georgia, Tartaris etc. The commodities of those countries are transported hither by *caffila* who also export the commodities brought hither by the English and the Dutch as also of the Kingdome.[75] Again Patna was chief mart for the goods from Nepal, Bhutan, Sikkim and Tibet. If Calcutta was the South-east gate for foreign trade, Patna was the Northern-western gate for upcountry trade.[76]

---

75 Thomas Bowrey, *A Geographical Account:* 221.

76 Sukumar Bhattacharya, *East India Company:* 132. 134,135, 148

Bihar in the 17th and 18th Centuries was marked by an abundant availability of raw materials, sufficient forest resources, very rich stores of minerals, a fertile land watered by numerous rivers many of them of a perennial nature, the ample supply of skilled labour, ability to create an agriculture surplus, transport and marketing facilities, an enterprising business class and an active inter-regional and foreign trade. The political transition in Bihar in the first half of the 18th Century did not undermine the working of the economy or lead to the decline of trade and manufacture for domestic and foreign markets. The regional economy showed buoyancy and resilience.

CHAPTER III

COTTON TEXTILE

The textile craft formed the core sector of the non-agricultural economy of Bihar. The manufacture of cotton textile was marked by an extraordinary diffusion throughout Bihar. Almost every village had persons engaged in spinning and weaving and the textile craft employed many hundred thousand of people. The spread and the intensity of textile manufacture was as pronounced and prominent as in Bengal and Orissa. The statements of Palsaert and Robert Orme on the ubiquity of textile manufacture in Bengal, may well apply to Bihar of seventeenth and eighteenth centuries. Palsaert says from Chabaspur (Shahbazpur and Sonargoan in East Bengal) to Jagannath (Puri) all lived by the weaving industry,[1] so also in Bihar, every village, every town was a centre of cloth production. Robert Orme described (1752) the cotton manufacture of Bengal almost as a national industry. It was difficult in his days to find a village in Bengal in which "every man, women and child is not employed in making a piece of cloth".[2] Mundy specifically in the context of Bihar mentions that the merchants had to go from town to town collecting cloth[3]. It

---

1 Francisco Palsaert, *Remonstrantie*, (ed. and trans.), W.H. Moreland and P. Geyl, *Jahangir's India*, Cambridge, 1925.

2 Robert Orme, *Historical Fragments of the Mughal Empire*, London, 1805: 409.

3 Peter Mundy, *Travels*, vol. II: 134.

emerges that the cotton industry of Bihar stood on the same footing as in Bengal and may be described as a 'national industry'.[4]

In the seventeenth and eighteenth centuries, Patna and its adjoining areas, Purnea, Gaya, Bhagalpur and Shahabad were important and reputed centres for, the prolific and cheap manufacturing of, fine as well as coarse, cotton fabrics. These fabrics were produced for foreign trade as well as home consumption.[5] While still an insignificant town in the late sixteenth century, Patna had attracted the notice of Ralph Fitch as a centre of trade in cotton goods.[6] The first English factory was started at Patna in 1621, under Robert Hughes and John Parker for purchasing cheap and excellent local calicoes and working the raw silk (available from Bengal) into suitable skeins.[7] Fine calico (*khassa*) was exported from Purnea to Murshedabad, Calcutta, Dinajpur, and also from Patna, Bhagalpur, Tirhut and Morang.[8]

The availability of locally produced raw material i.e. cotton, human capital and skill, the comparatively cheap means of a riverine

---

4 J. Sarkar, *Medieval Bihar Economy.*

5 W. Foster, *EFI,* 1618-21: 192-93, 213, 270 etc; Abul Fazl, *Ain,* vol. II: 240.

6 *Ralph Fitch:* 110.

7 W. Foster, *EFI:* 198; W. Foster, *England's Quest:* 314-5; *I.A,* XLIII.

8 F. Buchanan, *Purnea:* 572.

transport system and its inland water ways contributed to the extreme diffusion of the textile craft. The extensive cultivation of cotton in and around, Patna meant the easy availability of abundant raw cotton to the cotton manufacturers of Patna. In the *Ain*, cotton crops were being assessed for revenue in all the provinces.[9] Peter Mundy found a luxuriant growth of cotton plants in the area between Naubatpur and Patna in 1632.[10] Ralph Fitch, Bernier, Bowrey and Master refer to the production of cotton in Bihar, though no quantitative estimate of the acreage and production is possible. The prosperity of the cotton industry justifies the inference that land under cotton crop had been enlarging. Buchanan too, pointed out that in the early nineteenth century a great part of the cotton used in the cloth manufacture of Patna was that produced in the district of Behar and Patna itself.[11] In Patna, cotton accounted for 24,000 *bighas* of land. Of this land, 19,000 *bighas* gave only cotton, and the balance of 5000 *bighas* gave other crops, besides cotton.[12] The quality of the Patna cotton was also finer than that of Western India, although inferior to the cotton of Dinajpur.[13] In Shahabad, Buchanan

---

9 Abul Fazl, *Ain*, vol. II: 71-78.

10 Peter Mundy, *Travels*: 134.

11 F. Buchanan, *Behar and Patna*, vol.I: 647 Martin Montgomery, *The History, Antiquities, Topography and Statistics of Eastern India*, vol. I, London, 1838: 349.

12 F. Buchanan, *Behar and Patna*, vol. I: 68.

13 *Ibid:* 66.

reports, 28% of the cotton supply was grown in the district.[14] Thus the production of cotton in Bihar can be taken as wide and intense.

The production of cotton fabrics, revealing an abundance of human capital and skill was reflected in an impressive variety. The different names which occur in contemporary records are *amriti, cassa, resseyes, zafarkhani, jahangiri, lakhawari, aljah, khes, kamasukha, caymconyes* or *qaimkhanis, baftas, gara, mahamudi rasi, salgachhi, tangjeb, gajji, motia, bukis, photas, khokti, pagri, pata, charkhana, kanikos behar.* The textiles can be divided into a number of overlapping categories. They were produced as piece goods or readymade clothing (which involved little tailoring); Calico, a stout cloth, or Muslins (which were thinner); Plain (unbleached); bleached and dyed; or patterned. The patterns were produced not so much on the loom with coloured yarns, but more commonly printed with the wooden block or painted with a pen or stile. These were the famous *chintz*. The quality of the cloth was judged by the fineness of the yarn and number of threads to the inch. The production of textiles met different requirements and could be classified into three categories: coarse varieties for domestic consumption; luxury cloth for the court and nobility, a wide variety of fine assortments for interprovincial trade; and standardized coarse, medium and luxury varieties for the overseas trade undertaken by the European Companies.

---

14 W. W. Hunter, *Statistical Account of Shahabad District*, vol. XII: 260.

The coarse cotton cloth woven in and around Patna was generally called *ambertees* or *ambertress* (*ambati* or *ambarti*) as is recorded in the reports of the English Factors.[15] The name was probably derived from Hindi *amriti, ambroisa,* sweet as nectar.[16] Palsaert corroborates the production of a coarse muslin (*cassa*) at Patna worth Rs. 4/- or 5/- a piece.[17] Manucci terms the piece goods of Patna as a very "fine white cotton cloth" and observed that between 1653 and 1708 these were "very plentiful" in Bihar or Patna.[18] It varied in quality and length. It was a 'strong' close-made and well-conditioned cloth, unbleached and having no faults other than 'narrowness', the narrowness being the price of its durability.[19] The English factors in 1620-21 considered the *ambarti* to be stouter than *dariyabadi*[20], the *khairabadi*[21] and the *semanos.*[22] The English factor, Robert Hughes recorded in 1620 that when brought from the loom, the calicoes were not of one exact length, and were usually '13

15 W. Foster, *EFI,* 1618-21: 192-93, 213, 270 etc.

16 S.P. Sangar, "The Ambarti Cloth of Bihar', *POIHC,* 1973: 398.

17 Palsaert, *Remonstrantie*: 8

18 Manucci, *Storia,* vol. II: 246, 83

19 W. Foster, *EFI,* 1618-21: 192-93.

20 White cotton cloth of Dariyabad in the Barabanki district, U.P, W. Foster, *EFI,* 1637-41: 192.

21 Cloth of Khairabad in Sitapur District, U.P, W. Foster, *EFI,* 1646-51: 254.

22 A fine cloth of Samana in the old Patiala state, W. Foster, *EFI,* 1618-21: 161; 1637-41: 134.

coveds *jahangiri longe'.*[23] According to Francis Palsaert, *ambarty*, a superior type of white cloth, was 16 yards (*gaz*) long and of different widths, worth Rs. 4/- to 10/-, a piece, in 1627.[24] This is confirmed by the account of Peter Mundy (1632) who found the cloth, when taken from the looms, 12 *coveds* or 14½ yards long and of various breadths.[25] *amertees* worth Rs. 2000 and Rs. 75000 were procured by the English factors from Patna in 1620.[26] *Aja ib i Duniya* refers to another variety of cloth called *mercool* which had perhaps been recently introduced in Bihar from Upper India for it does not occur earlier.[27] *Khulasatut Tawarikh* simply records that various kinds of cotton cloth were woven at Patna.[28]

Besides these, there were three better varieties of *ambarti* cloth-*rasseyes* (*razais*), *zafarkhani* and *jahangiri*. (I) the *rasseyes* were not quilts but extremely coarse, thick woven wrappers, about Rs. 2/- a piece and measuring 13x1/2 yards.[29] They were manufactured

---

23 W. Foster, *EFI*, 1618-21: 192-93.

24 Palsaert, *Remonstrantie*: 8.

25 Peter Mundy, *Travels*: 135

26 W. Foster, *EFI*, 1618-21: 200

27 *Ajaib-i-Duniya*::185a, cited in H.K. Naqvi, *Urban Centres and Industries in Upper India, 1556-1803*, Bombay, 1968:141.

28 *Khulasat ut Tawarikh*: 38, cited in Naqvi, *Urban Centres and Industries: 141*.

29 W. Foster, *EFI*, 1618-21: 213.

around Patna. (ii) The *zafarkhanis* were broader and much finer than the *rasseyes*. They were probably products of the *karkhana* of Zafar Khan, a previous governor, priced at Rs. 2 to Rs. 6 per piece. They were 13x1/4 yard in size.[30] The purchase of *zafarkhani* calicoes, manufactured at Lakhawar and sold in the Patna mart was recommended by Robert Hughes, member of the First English Commission. In his letter dated August 3, 1621 he pleaded for the purchase of Patna *zafarkhani* since "it paralleled if not exceeded your narrow *barroach baftas*.[31] He was also supported by Robert Young, an employee of East India Company, posted at Samana (in erstwhile Patiala). He wrote to the President of the Council at Surat that "Patna was a more fitting place than Samana as it was reported to afford greater quantity of well made cloth which is more suited to our country than the cloth of these parts (i.e. Samana) which is of slighter making and uncertain length."[32] It was only in early forties of the seventeenth century, when Gujarat recovered from the ravages of a famine (1630-32), that Gujarat calicoes could compete at par with the Patna *zafarkhani* or *amerties*.[33] (iii) the *jahangiri* were the broadest and finest of the *amerties*. They were priced at Rs. 3/- to Rs. 12/- a

---

30 *Ibid.*

31 *Ibid*: 192

32 *Ibid.*

33 *Ibid.*

piece. Their size was 13x1 yard in size.[34] *jahangiris* and *żafarkhani* worth Rs. 95,000 were procured from Patna in 1620.[35]

Conditions however changed about ten years later, when Peter Mundy came to Patna in 1632. As most of the weavers were engaged in the Private *karkhana* of the local governor Abdullah Khan Firuz Jung, (1632-39) in making fine linen for his *haram*, Mundy held that *ambarti* cloth could be found cheaper at Agra than at Patna.[36]

The easy accessibility of Patna by a road system and a regular boat service not only gave it a position of pre-eminence as a textile-trading centre but also led to the growth of textile craft in the neighbouring areas. The neighbouring localities of Patna, within a radius of nearly eight kilometers, were important centres and markets of cotton manufactures (I) Lakhawar (Jahanabad district), nearly forty kilometers west of Patna[37], the cloth manufactured here being term *lakhawari* cloth or '*lakhawari* long cloth'. It was such a noted centre of cloth production that ten to fifteen thousand pieces of excellent calico could be easily procured from there.[38] It is needless to add that

---

34 *Ibid:* 213

35 *Ibid:* 258

36 Peter Mundy, *Travels:* 8,15

37 Irfan Habib, *An Atlas of the Mughal Empire, Political and Economic Maps with detailed Notes, Bibliography and Index, Delhi,* 1982: 10B

38 W. Foster, *Early Travels:* Introduction, XXII.

Patna served as the market for the cloths produced at Lakhawar.[39] (ii) Nundownpore (probably Nundan about fifty kilometeres South of Patna.[40] (iii) Salimpore (Islampur of Futwa Islampur line or near Baikunthapore).[41] The cloth variety here was the *aljah*. It was 5 ¼ x ¾ *coveds* long. It was half silk and half cotton.[42] (iv) Bihar (Sharif) was also a centre of cloth production, according to Keene, chief of the Kazimbazar factory (1661.[43] It also specialized in the production of Towels.[44] (v) In Phatuha the cotton weavers were employed in weaving *khes* (cotton diaper). This was used by the by the local people as a dress and was in great demand by the Europeans for the manufacture of table linen. The table cloths (*chaddur*) were made of four dimensions i) 20 x 4 & ½ cubits, valuing Rs. 10 (ii) 9 x 4 & ½ cubits, common value 3 Rs.8 *anas* to Rs. 8 (iii) 4 & ½ by 4 & ½ cubits, common value 1 rupee 3 *anas*; towels 1 4/7 x 1 3/7, common value by score 2 Rs. 8 *anas*.[45]

---

39 W. Foster, *EFI*, 1618-21: 192-93, 198, 213; Palsaert, *Remonstrantie*: 7-8.

40 Askari, Q. Ahmad, *C.H.B.* vol. II, part II: 423.

41 *Ibid.*

42 W. Foster, *EFI*, 1618-21:192-93

43 Askari, Q. Ahmad, *CHB*, vol. II, Part II: 423.

44 J.C.M. Birdwood, *The Industrial Arts of India*, London, 1880: 284-249.

45 W.W. Hunter, *Statistical Account of Patna District*: 144; F. Buchanan, *Behar and Patna*, vol. I: 652.

The varieties of calicoes, both coarse and fine (Muslins), which could be procured in the neighbourhood of Patna and Lakhawar were— (i) *sahan* (enduring) or *sohan* (fine sheeting) 5 as - 6 as each, referred to by Abul Fazl in the *Ain* and by Palsaert (1620-27)[46], (ii) *hammam*, towelling or wrapper - both these varieties were in the hands of the Pathan dealers who imported them in small parcels from Lower Bengal in boats. They were neither local products of Patna, nor were they in much demand for local consumption. However, the needs of the English Factors in 1620-21 led to a gradual increase in their imports into Patna.[47] (iii) *chautaha* or *chautare* (four folds, a coarse double length, double width cotton cloth), a variety of thick calicoes including *sahan* and *hammam*. The trade was highly lucrative.[48] (iv) *rahmoutes* or *rawat,* a kind of *chautah* or wide coarse cotton cloth. While, Palsaert regretted that the Dutch did not indent the varieties of *chautaha* for Holland and Batavia, the English factors endeavoured to procure these for their investments.[49] (v) *kamsukha,* a rough unfinished product, partly dyed, unbleached *ambarty* or *lakhawari* (vi) *cassa* (or *khassa),* a variety of coarse Muslin, exported

---

46 Palsaert, *Remonstrantie*: 8.

47 W. Foster, *EFI,* 1618-21: 192-93.

48 *Ibid.*

49 Palsaert, *Remonstrantie*: 8.

from Patna and priced at Rs. 4/- Rs.5/- a piece.[50] A finer variety of Muslin known as *qaimkhanis* or *caymconyes,* Rs.2-3 a piece, worth ten hundred thousand of rupees per annum was chiefly purchased by Mogols (Mughals), Praychaes (East Bengal Traders in 1620-21) and Armenians around 1661 for transport to Lahore and Surat and thence to Persia.[51] Manucci refers to one Armenian merchant, Goja (Khawaja) Safar who alone purchased cotton clothes worth Rs. 30,000/- from Patna and dispatched them to Surat during 1663.[52] About 1620-21 the Bihar *qaim khanis* were considered by the English to be "fitter for Persia than England, and as fit for Barbary and Turkey as any other place". The English Company shipped these to England for export to South Africa and Turkey.[53] Bowrey informs that Patna also imported from Dacca "fine *cossas* commonly called *muzlinge* (muslin)."[54] (vii) a thin cloth, like calico lawn, was produced in large quantities in early seventeenth century. (viii) *doupattas* narrow calico, were imported from Malda by the Praychaes early in the seventeenth century.

---

50 W. Foster, *EFI,* 1618-21: 192-93.

51 C.R. Wilson, *The Early Annals of English in Bengal,* vol. I, Calcutta, 1895: 397; W. Foster, *EFI,* 1618-21: 192.

52 Manucci, *Storia*:: 84.

53 R.C. Temple (ed.), 'Documents relating to the First English Commercial Mission to Patna', *I. A*, 1914, vol. 43: 82.

54 Bowrey, *A Geographical Account*: 230.

The English Factory Records give the statistics on the export trade in cotton goods by the English Factors from Bihar from 1618-1625.

Date	Variety	Procured from	Volume	Prices
1. 6.8.1620	*Amertees*	Lakhawar		Rupees 1 to 6 per piece.[55]
2. "	*Tasser* and *Aljah*	Baikunthpur, Patna	*Aljahs* 16 Corge	Rupees 400 and Rupees 10-16 per corge for the *Aljahs*.[56]
3.6.10.1620	*Amertees*	Patna		Worth Rupees 2,000.[57]
4. "	"	"		Worth Rupees 75,000.[58]
5. 3.8.1621	*Jahangiri* and *Zafarkhanis*	Patna		Worth Rupees 95,000.[59]
6. 1625	*Amertees*	Patna		Worthy 10,000 Mahmudis

Cotton manufacture in Bihar continued to flourish till the end of the eighteenth century. Patna cloth had a brisk demand in the London market in the last quarter of the eighteenth century. In the *Fort William - India House Correspondence* the cotton manufacture is

---

55 W. Foster, *EFI*, 1618-21: 197.

56 *Ibid*: 192-3.

57 *Ibid*: 200.

58 *Ibid*.

59 *Ibid*: 258

mentioned as 'Patna Cloth' or 'Patna Piece goods'. Among the varieties mentioned were *malmulls, amberty, calicoes, mahmudis, baftas, cassa*'.[60] In December 1751, the following Patna goods were purchased by the English after sorting as being suitable for the "Europe market"[61]: -

malmulls about 2400 @ Arcot Rs. 86 per corge.
calicoes 900 @ " 121 "
mamodies 500 @ " 78 "

In February 1752, the English purchased the following Patna goods (as ordered by Court of Directors) from Omichand:

	Yds.	No. of Pieces	A.Rs.
Emmerties of (*Amberty*)	14 and 14	5600 @	85 per corge
Bafftas of	18 and 12	3500 @	98 per corge
Calicoes of	12 & ½ and 1	800 @	84 per corge

(Invoiced under Patna *cossaes*).[62]

---

60 H.N. Sinha (ed.) *Fort William – India House Correspondence*, vol. II, 1764-1766, Delhi, 1962: 508: The manufacture of *Baftas, Cossaes*, and *Mulmuls* is also mentioned by W.Milburn *Oriental Commerce*, Vol. II: 121.

61 H. N. Sinha (ed.), *Fort William. India House Correspondence, vol. II*: 508.

62 *Ibid.;* Supply of Muslins, *Chintz* of different colours and *Amriti* from Patna is referred in *Bengal Board of Trade (Commercial) Consultation*, 10 September, 1819 and 2 September 1820.

In 1772, the Patna factory of the English East India Company supplied 40, 800 pieces of different varieties of cloth worth Rs. 1,57,286. In 1775-76, it was to supply Cloth, worth Rs. 2,50,000. In 1777-78, the Board of Trade proposed to invest Rs. 3,52,000 for Patna piece goods and turmeric.[63] In 1792, the Company's Commercial Resident of Patna sent an assignment of Rs. 1,11,974 in the Tirhut treasury on account of cloth investment[64]. These statistics speak eloquently of the demand of Bihar cotton goods in foreign markets in the last quarter of the eighteenth century. In 1778, Mr. Guinand, Superintendent of the Company's piece goods at Patna observed - "As all Patna goods sell with good advantage in England and are always in demand, the quantity should be kept up as much as possible."[65]

The bulk of the exportable surplus of cotton goods of Bihar was purchased by the English Company, which had a chief factory at Patna, besides having *aurungs* at Jahanabad, Mugrah, Khagual, Meer Begum, Chaprah, Bhojpur, Mau and Tirhut.[66] After the establishment of the British political authority in Bengal the English Company permitted the other foreign companies to purchase cotton

---

63 *JBRS*, vol. XLVI, January-December, 1960: 189-91.

64 From Commercial Resident of Patna to the Collector of Tirhut, 3rd May, 1792, *Muzaffarpur Collectorate Records.*

65 *JBRS*, vol. XLVI, January-December, 1960: 192.

66 *Ibid:*191.

cloth in Bihar except in time of war. In 1782, Mr. G.F. Grand, the first Collector of Tirhut, was instructed to prevent the contractors, for the English investment, particularly Ram Chand Pandit, from throwing obstacles in procuring cloth by Dutch for which advances had already been given to the weavers.[67] After 1813, the demand for the Patna fabrics languished because it was not possible for hand-woven Indian Piece - goods to compete with the machine-made British fabrics. In 1819 the Company discontinued its cloth investment from Bihar and its factories were closed. Several thousands of people were thrown out of employment. Subsequently, the weavers engaged in manufacture of coarse cloth for local use were also hard hit by unrestricted importation of cheap British cotton goods. By 1833 the cotton craft was almost ruined.[68]

The cotton textile production in Bihar in the seventeenth and eighteenth centuries was primarily organized as a cottage industry by weavers and artisans in their own homes. It gave employment to a fairly large proportion of the population. Virtually every operation connected with the production of cotton-cloth i.e., cotton carding, spinning, winding, unwinding, re-winding the yarn, weaving on the loom, bleaching, dyeing, printing, painting of designs - developed into distinct skills and occupations and some as exclusive *jatis* or caste

---

67 Letter to the Collector of Tirhut, 4th April, 1782, *Muzaffarpur Collectorate Records*.

68 Askari, Q. Ahmed, *CHB*, vol. III, part I: 448.

categories. Particular varieties of textiles came to be produced by specific sub-castes. An intrusion into another sub-castes province was permitted, though not desired. This conservatism was reflected in that the cotton manufactures were a different class from the silk weavers or from the manufactures of mixed fabrics. Thus, the textile industry was marked by an intense specialization and division of labour. Perhaps it was in this way that it was responding to the demand for an increased production.

This intense specialisation and division of labour, practiced over generations, came to be associated with the specific skills required for textile production. The raw material, cotton, was picked by the cotton picker called *lorhnihar* (gatherer) in some parts. North of the Ganges the picker was paid by a share of the cotton picked. In North West Tirhut the share was a fourth of the crop, called *chauthaiya*.'[69] The cotton was first of all cleaned (*otni, auntai*)[70] by freeing it from the seeds and the dirt. In the next stage the cleaned cotton was beaten so as to be fit for being spun into yarn. A great deal of cotton was freed from the seed by the women who would spin it and a part of it was also beaten by the same women.[71] However, it was the *dhuniyas* or

---

69 G.A. Grierson, *Bihar Peasant Life*, Calcutta, 1885, Delhi Reprint, 1975: 238.

70 *Otni* and *auntai* also mean wages for cleaning.

71 M. Montgomery, *Eastern India* .vol. I: 350; F. Buchanan, *Patna-Gaya*, vol. I: 647; W.W. Hunter, *Statistical Account of Purnea*:: 357.

dhunaru who made a distinct profession of cleaning and beating cotton.[72] Buchanan reported that in Shahabad, some *chamars* had also adopted the profession of *dhuniyas.*[73]

Buchanan estimated that there were 1873 *dhuniyas* in the district of Bihar, of which 278 were in the Patna City[74]. 1/3 of the *dhuniyas* of Patna had stock enough to enable them to buy a little cotton, which they cleaned and then retailed.[75] *Fatawa I-Alamgiri* mentions the sale of both cleaned cotton as well as cotton with seeds.[76] The rest of the Patna *dhuniyas* worked entirely for hire.[77]

The modes of payment to the *dhuniya* varied. In Patna, a *dhuniya* could earn Rs. 3 to 4 Rs. a month. If he possessed little capital, he could even make Rs. 4 to Rs. 5 a month.[78] In the villages it was common to pay the *dhuniya* by grain. At Arwal (a *thana* or division in the district of Patna and Bihar) the *dhuniyas* were allowed 1½ *sers* of grain for beating 1 *ser* of cotton. In one day a man beat 4

---

72 F. Buchanan, *Patna-Gaya*, vol. I: 647.

73 F. Buchanan, *An Accont of the District of Shahabad in 1812-1813*, Patna, 1834: 408.

74 F.Buchanan, *Patna-Gaya*: Appendix, 771.

75 *Ibid*: 647.

76 *Fatawa-i-Alamgiri*: 169, cited in H.K. Naqvi, *Urban Centres and Industries*: 150.

77 F. Buchanan, *Patna-Gaya*, vol. I: 647.

78 *Ibid.*

sers of cotton and received 6 *sers* of grain.[79] In Purnea, the *dhuniya* exchanged the cleaned cotton with women spinners at the rate of 1½ *sers* of cotton for 1 *ser* of thread. The *dhuniya* could clean 3 *sers* of cotton daily. The more enterprising *dhunaru* also gave the thread to the merchants and received more cotton and a little money for surplus value of the thread. Such *dhunaru's* made large profits from 4 to 8 *anas* a day.[80] The *dhuniyas* could prepare the cotton either for just stuffing quilts and mats as in Shahabad, or for spinning as well as stuffing in Purnea.[81] Buchanan opines that the *dhunaru* had no capital, did not care to earn well, were generally indolent and most abandoned drunkards.[82]

The next stage of cotton manufacture i.e., spinning of yarn was far more widely distributed. Yarn was also produced by a subsistence-oriented system in peasant households. The weavers producing for the market were found, invariably procuring yarn spun by independent spinners. No rank or caste was considered degraded by spinning. It was practically a monopoly of women, and even women of the highest caste spun as earnestly as others. Thus

---

79 *Ibid.*

80 Martin Montgomery, *Eastern India*, vol. III: 326.

81 F. Buchanan, Shahabad: 408; Montgomery, *Eastern India*, vol. III: 326.

82 F. Buchanan, *Patna-Gaya*, vol. I: 647.

Brahman women spun yarn as did the wives of *jugis* and cultivators. In this, the spinning of yarn formed an exception for no high caste person was known to have gone in for any other manufacturing activity directly or indirectly.

In the districts of Bihar (Patna-Gaya) nearly 3,30,426 women were engaged in spinning. Their net annual average income per head was Rs. 3 and four *anas*.[83] In the district of Shahabad 1,59,500 women were employed in spinning and the average annual produce of each woman was about Rs. 8. However, the average net income during the year was only a rupee and half per head.[84] In the district of Bhagalpur 1,60,000 women were employed in spinning and each woman earned a net income of Rs. 4½ annually.[85] By far the greater part of the women would spin only a few hours in the afternoon in addition to her household chores.[86] There were also women who would spin assiduously for longer hours with no interruption from children or family and could earn much more, especially where the thread was fine.[87] In Purnea, Buchanan reports that, women who did no particular household chore could in a month spin 1 & ¾ *ser* of middling fine thread on the wheel, earning a profit of 10 & 2/5

---

83 F. Buchanan, *Patna, Gaya*, vol. II: 647.

84 F. Buchanan, *Shahabad:* 408-9.

85 Martin Montgomery, *Eastern India*, vol. II: 267.

86 F. Buchanan, *Patna-Gaya*, vol. II: 647

87 *Ibid.:* 648

anas.[88] In Purnea women spinning fine thread on the spindle (no distaff) earned a monthly profit of 14 5/12 *anas.*[89] Women spinning fine thread suffered as the demand for fine goods diminished in the early years of the nineteenth century.

Weaving of cloth was more professional and was primarily the business of men though women also helped. Boys were also employed as *nikaris* (apprentices). Moreover, the weaving industry was organised on a caste basis. Among the Hindus it was confined to the *tatwa* caste and to a particular section of the Muslims called *julaha*. Besides the professional weavers, in the district of Purnea, some 500 farmers and about 100 barbers kept a loom and occasionally wove cotton cloth at their leisure.[90] It seems it was permissible for one man to follow two unlike professions, such as manufacturing and farming, but a total change over from one profession to another was an exception rather than the rule.

According to Buchanan, in the district of Patna-Gaya, there were 19,590 houses of weavers and 23,552 looms engaged in manufacturing coarse cotton cloth for internal use, besides those engaged in weaving finer cotton cloth for export and mixed fabrics of silk and cloth. Their average annual earning was about Rs. 28 & ¼.[91]

---

88 Martin Montgomery, *Eastern India*, vol. III: 323.

89 *Ibid:* 537.

90 Martin Montgomery, *Eastern India*, vol. III: 328.

91 F. Buchanan, *Patna-Gaya*, vol. II: 774, (Appendix Table 42).

In the Company's factories at Maghra, Jahanabad and Bigha in the Patna-Behar district, where finer cotton cloth like *amriti*, *malmal*, *bafta* etc. was being manufactured, a loom would weave from three,-two-one cloth in a month.[92] In Patna-Gaya, the total number of looms employed in the manufacture of *khes chadars* or table cloths was 750, each having a profit of Rs. 108 & ½ annually. Three persons were employed in each loom-the *lungri* pulled the thread to form the pattern, *dobarah* twisted the thread and the *binkarai* would weave'.[93] In the district of Bhagalpur, according to Buchanan, there were 6213 houses of weavers of cotton cloth having 7279 looms.[94] Each loom produced cloth worth Rs. 70 annually, there profit being Rs. 32 a year and each loom employed a man, his wife and a boy or girl.[95] In Shahabad there were 7025 houses of cotton weavers, having 7,950 looms, producing cloth worth Rs. 622,950 and their total annual profit was stated to have been about Rs. 1,65,000. Thus the average net income of each weaver of Shahabad was Rs.28 and 12 *anas*. Buchanan is of the opinion, however, that they made more than double of what was stated to him.[96] In Shahabad the surplus men in the weaver houses were employed in agriculture also.[97] In the district

---

92 *Ibid*: 775, (Appendix Table 43).

93 *Ibid.*

94 Martin Montgomery, '*Eastern India*, vol. II: 328.

95 *Ibid*: 275.

96 F. Buchanan, *Shahabad:* 411,

97 *Ibid.*

of Purnea the weavers of cotton were numerous. They were mostly employed in manufacturing coarse goods for internal use, employing 10,000 looms. In addition there were 3500 looms of weavers who were manufacturing fine beautiful white calico called *khasa*. Of these 2400 looms were wrought by men who catered to the English East India Company's demands. These weavers would make one piece of cloth in a month for the Company and use their spare time to weave coarse cloth for internal use, in order to augment their income. A man, his wife, a boy or girl could weave fine cloth worth Rs.12 a month and earn a profit of Rs. 4[98] Among the cotton weavers of Purnea were included 80 houses of *chapals* who had 90 looms employed in weaving checkered cloth. These weavers were confined to the North east part of Purnea i.e., to the small space near the upper part of Karatoya and Mahananda.[99]

The next operation in the production of cloth i.e. bleaching too, had developed into a distinct occupation. Buchanan reports that in Bihar district, the people who performed the operation of bleaching cloth were of a distinct profession, doing no other work, and were called *kundigars.*[100] A class of artists called *parchahkush*, was employed to put all the threads in the bleached cloth at equal distances. Three workmen did this with a wooden comb. This was

---

98 Martin Montgomery, *Eastern India*, vol. III: 328

99 *Ibid*: 328-29.

100 F. Buchanan, *Patna-Gaya*, vol. I: 654.

necessary because the cloth made in this district was very thin and bleaching brought the threads into cluster, leaving many parts in holes.[101] In some places, a needle was used to place the threads at equal distances, and the workmen were called *nardiyas.*[102] Peter Mundy reports that the merchants purchased raw and unbleached cotton clothes from the market of Lakhawar with the help of brokers who charged 25% as their commission. The raw pieces were sent to the washerman for bleaching and he took nearly three months for completing this work and charged Rs. 3/- for 20 pieces.[103]

The washermen (*dhobis*) were also employed in the East India Company factories at Jahanabad, Arwal and Biharsharif to bleach the fine cloth of a close fabric of the Company. The Company's factory at Jahanabad employed 75 men. They were paid wages for the same with or without bleaching materials such as soap, soda, lime and requisite implements. Four men usually worked in company, and on an average bleached four score a month. The average annual earning of such washermen was around Rs. 19½. Their women supplemented the income by washing the clothes of the village community or by giving indirect help to washermen by collecting fuel (wood) for bleaching. Sometimes the washerman and his wife formed the team of

---

101 *Ibid.*

102 *Ibid.*

103 Peter Mundy, *Travels*: 145.

bleachers, as in Bihar Sharif and earned around Rs. 39/- per annum, net of all expenses on bleaching material and equipments.[104]

Another specialized activity related to the textile finishing craft, was the preparation of gold and silver wire, threads, laces and cloth. More than 200 families were employed in Patna city in making gold and silver cloth laces and threads.[105] A flattened gold and silver wire called *badla* was made by craftsmen belong to a particular caste the *kangnigars*.[106] In Patna, fine pieces of cloth were ornamented at the ends with the *badla* wire and looked very showy. The *badla* wire was not woven into the cloth, but put in with a needle. The *badla* wire made at Patna was too fine for cloth pieces, and was therefore used only for making lace and thread for embroidery. There was further specialization in this craft with the *gotesaz*[107] making gold and silver lace and the *batwaiya* or *kàlabatu*[108] making gold and silver thread and twisting the *badla* wire round silk. The *badla* lace and thread was also exported to Murshidabad, Calcutta and Dacca where they were used by embroiders[109]. This lace was considered inferior to the lace

---

104 F. Buchanan, *Patna-Gaya*, vol. I: 615.

105 *Ibid*: 655.

106 *Ibid*.

107 *Ibid*.

108 *Ibid*.

109 *Ibid*.

from Europe and even Benaras, but it was superior to that from China. It was of two kinds—*kenari* which was from 1 to 3 inches wide, and *gota* which was from one-eighth to seven-eighths of an inch broad. Some of the lace, which they made, was of copper gilt, or silvered by the workmen of Barh.

The *kangnigars* stitched from five to seven bands of *badla*, each was consisting of 350 wires. Buchanan reports that the workmen received four *anas* for 100, and a man could daily put in from 50 to 70 wires. If he put an average of 60 wires, and worked for 26 days a month, he would on an average earn a profit of Rs. 3 & 7/16.[110]

The *tashabaf* would weave cloth of gold or silver, the latter being more common. Buchanan reports that the warp of this cloth was made of proper silk and the woof was the flattened *badla* wire. It was not figured. It was used chiefly by rich men for sashes or mantles to throw round the shoulders. The pieces were from three to eight cubits long, and from two cubits wide, and sold from Rs. 5 to 20.[111]

---

110 *Ibid.*

111 *Ibid.*

The *alakbands*[112] made little strings and tassels that were ornamented with gold and silver, and often with pearls and jewels. They were usually hung to the handle of the daggers, which nobles and men of rank wore in the girdle. Individuals carried these ornaments to different parts, but merchants did not export them on a large scale.

The *patwars* would knit strings and fringes, from pure silk, tasar and even cotton. The *patwars* of Patna were reckoned as very good workmen.[113] The *nakads* would wind and twist the silk to render it fit for the use of *patwars*, and the makers of cloth of gold, silver and lace, and of gold and silver thread. The winding was rather difficult, as the hanks and clew of raw silk, as prepared by the craftsmen were exceedingly ill contrived and only an expert could take off one yarn of silk thread without breaking it.[114]

Patna was famous for manufacture of *chintz* (from the vernacular *chitta* or spotted cloth) about the last decade of the seventeenth century and middle of eighteenth century. Ward writes, 'The making of *chintz* appears to be an original art, long since invented, and brought to so great a pitch of excellence, that the

---

112 *Ibid.*

113 *Ibid.*

114 *Ibid.*

ingenuity of artists in Europe had hitherto added little improvement, but in the superior elegance of the patterns.[115] Stavorinus observed (1768-71) that "printed cottons, commonly called *chintzes* (*chints*) were not manufactured in Bengal, except near Patna, in the province of Behar (Bihar)", which were called from the name of the place Patna *chintzes.*[116] Patna *chintz* was cheaper and of better quality than that of Coromondal and Gujarat.[117] However, the Patna *chintz*, was coarser than that of Lucknow and Calcutta. Yet the Armenians and Portuguese purchased the former, in the first decade of nineteenth century.[118] *Chintz* was worn a great deal by men of lower classes but women seldom appeared in such a dress.

The quantity of *chintz* produced in Patna was small involving relatively few weavers. The *chintz* workers of Patna, worked for export, unlike those of other districts of Bihar who worked for internal use. The *Chintz* workers did not have regular employment, and earned about Rs. 5 or 6 a month. In a day two men could print a piece of calico, for which they got a rupee, but the chemicals cost 1/2 of the

---

115 Ward, *A View of the History, Literature and Religion of The Hindoos*, vol. I: London, 1817: 96. For details see John Irwin and Katherine B. Brett, *Origins of Chintz*, London, 1970: 1.

116 J.S. Stavorinus, *Voyage in the East Indies*, trans., S.H. Wilcoke, vol. I, London, 1798: 464.

117 John Irwin, 'Indian Textile Trade in Seventeenth Century' *J.I.T.H*, vol. III, Ahmedabad, 1957: 60-61.

118 F. Buchanan, *Patna-Gaya*, vol. II: 656.

money. If the employment was constant, this could give Rs. 7 or Rs. 8 a month. Most of the *chintz* workers did not work independently. They worked as mere servants for the merchants. The latter furnished the calico and the printing apparatus to the *chintz* workers. Only a few *chintz* workers had a small amount of capital to enable them to buy the materials and employ servants to print the cloth and hand it to the merchants for export.[119]

Another type of printing prevalent was the stamping or printing of gold and silver flowers on fine Muslins. This was done by the *chapagars*. The process was simple and has been described by Buchanan. They stamped the cloth in the form wished, with common glue, and then applied gold and silver leaf, which adhered to the glue and rubbed off where the glue had not been applied. This cloth could not be washed, but was very showy and was used on high occasions.[120] There were also a few women called *buta banwaiyas*, who flowered cloth in Patna.[121]

---

119 *Ibid.*

120 *Ibid.*

121 *Ibid.*

Techniques of Production

Regarding the techniques adopted in the manufacturing of cotton goods in Bihar, we are confronted with a paucity of material. There are only a few contemporary written sources to draw upon for this important aspect of the craft. It is therefore necessary to look into the earlier or, more often, subsequent sources, in order to discover the techniques that were used during the period and in the region under review. In fact the surviving crafts in certain interior pockets of Bihar, are still being carried out as in the past and it is quite likely that intervening centuries saw very little change.

The first step towards the transformation of raw cotton into a piece of woven cloth was obviously the picking of cotton (*kapas*) from its pod - the job being done manually. The cotton tree (*gossypium herbaceum*) was known everywhere in Bihar except is the South-West as *banga*, with a local variant *bango* in South Bhagalpur. To the West it is called *kapas*, which properly means the cotton in the pod.[122] There were two main varieties of cotton in Bihar. First there was the herbaceous annual plant, about four feet in height and the other was the twelve-year-old tree bearing cotton flowers called *senbhal*.[123] The former was more common in Bihar and was utilized for the

---

122 G.A. Grierson, *Bihar Peasant Life*: 136.

123 J.C Ray, *JBORS*, vol. III, Part II, 1917: 186, 222.

manufacture of fabrics while the latter was best suited for stuffing and quilting.[124] Most kinds of annual cotton ripen about April-May (*baisakh*). Among the varieties were *bhogila* (North of the Ganges), a good kind with large pods, and of medium height; *bhochri* (north of the Ganges), a small variety, of which the cotton is apt to get blown out of the pod by the wind; *phetwal,* grown in North-West Tirhut; *gajar,* grown close to the house and not in the fields as in North-East Tirhut and Shahabad; *rarhiya* (Patna, Gaya and the South West), a dwarf variety; *baraisa* (Patna and Gaya), a large variety; *larma* (Saran); *narma* and *henwti* (Shahabad), a dwarf variety. Other kinds grown in Shahabad are *banrchha* or *banruchha; and manwan,* and in Munger, was a variety called *gola* and *suphed.* Tirhut was famous for a special kind of cotton which ripened in August-September (*bhadon*), called *kokti* or *bhadaiya,* which is of a red colour, and of which thread and cloth of extreme fineness were made. A dress of *kokti* cloth lasted a lifetime. From *rarhiya* (raw cotton) about one sixth clean cotton was obtained; from *bhochri* and *kokti,* about a quarter; from *bhogila* and *henwti,* about a third, and from *phatwal,* about two-fifths.[125]

The next step following the picking of the cotton was cleaning the raw cotton, before it could be spun into yarn. The harvested

---

124 George Watt, *The Commercial Products of India,* London, 1908: 570-71; *Reports and Documents Connected with the Proceedings of East India Company on Cotton Wool,* London, 1936: 523.

125 G.A. Grierson, *Bihar Peasant Life*: 237-238.

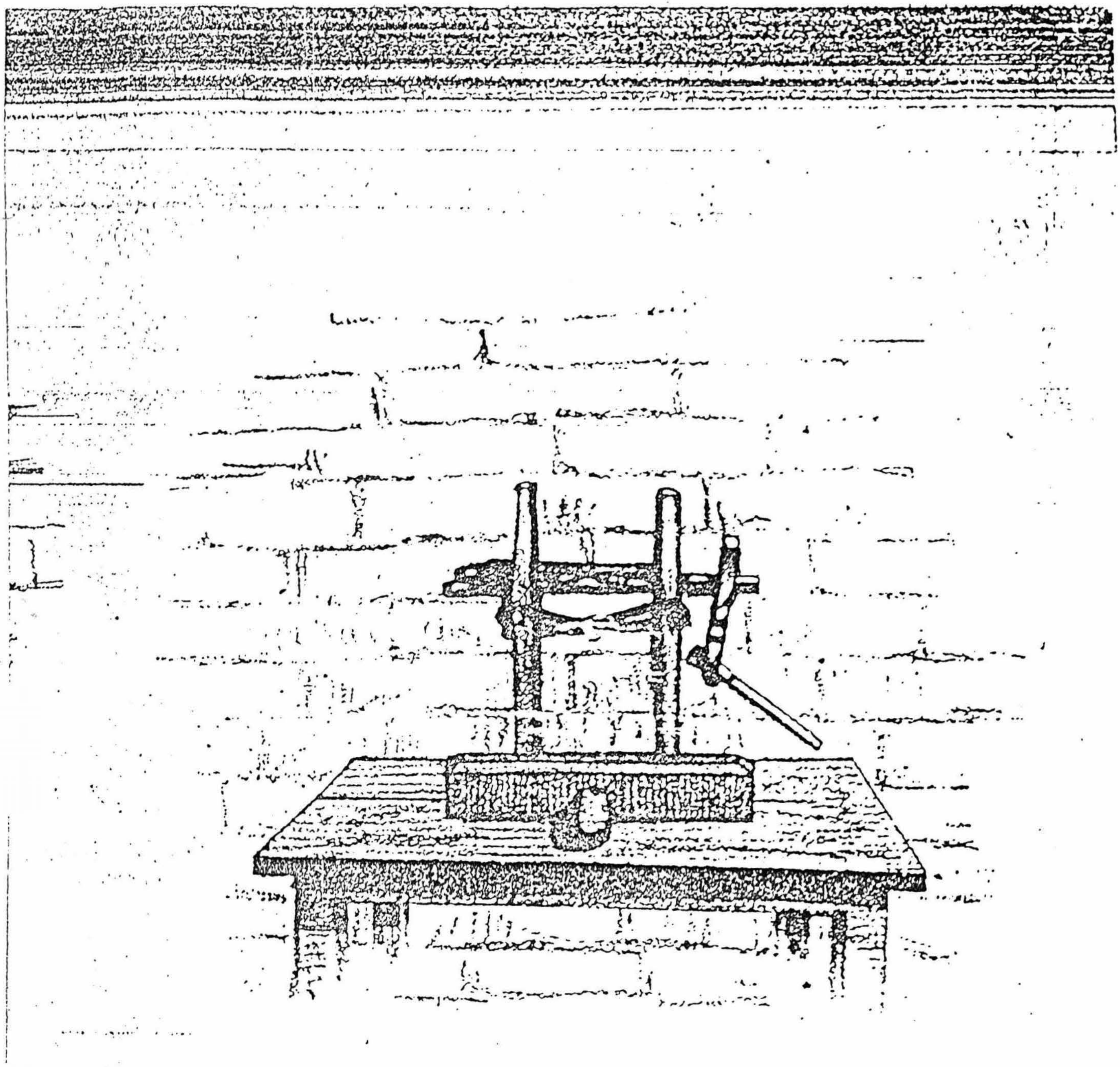
cotton was left in the sun for a few days. This weakened the adherence of seeds to the floss and facilitated the separation of the former to the floss.[126] Buchanan points out that the implements for cleaning and beating of the cotton were no different from those that were usual in India.[127] The ginning of the cotton i.e., separation of the seeds from the cotton was done by the two simple and traditional methods - the foot roller and board and the *charkhi* or cotton gin. Of these, according to Watt, the roller was adopted to the hard seeded inferior cotton. This cleaned the fibre as follows: - The cotton was spread over a smooth flat stone measuring one or two feet square. The stone was either square or round. An iron rod about 18 inches long and thick in the centre, tapering towards the extremities, was placed on the stone, and rolled forward and backwards by the feet of the workers. Sometimes the rods was shorter and slightly conical, in which case the motion was circular, round and round the stone. Under the continued influence of the rolling motion and the pressure of the feet the seed was squeezed out and pushed away in front of the roller, leaving the cleaned fibre behind. One worker could in this way turn out from four to six pounds of cleaned cotton in a day.[128]

---

126 Ishrat Alam, 'Textile Tools as Depicted in Ajanta and Mughal Paintings': 129.

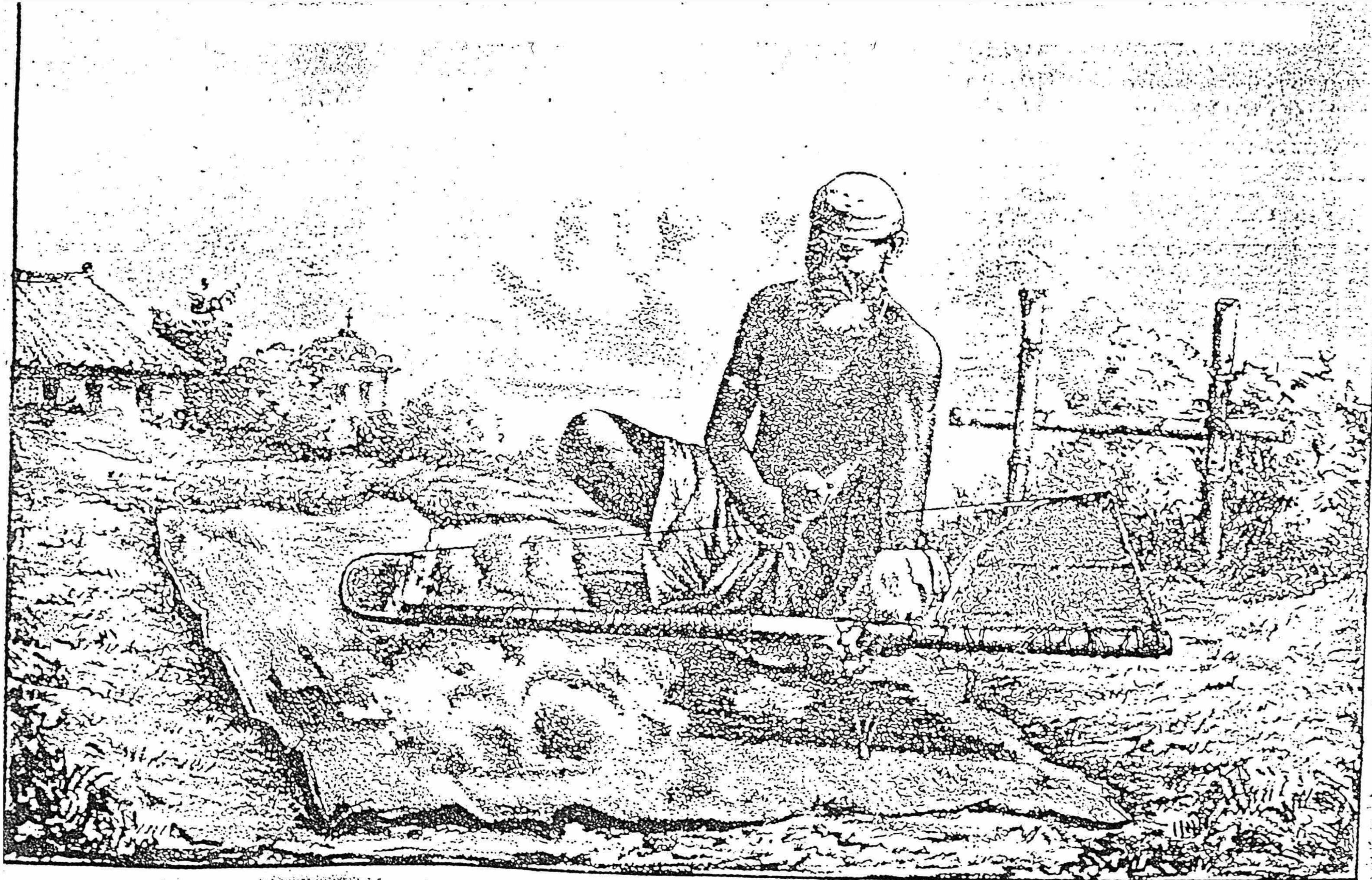
127 F. Buchanan, *Patna Gaya*, vol. II: 649.

128 George Watt, *A Dictionary of the Economic Products of India*, vol. IV, London 1890: 152-153.



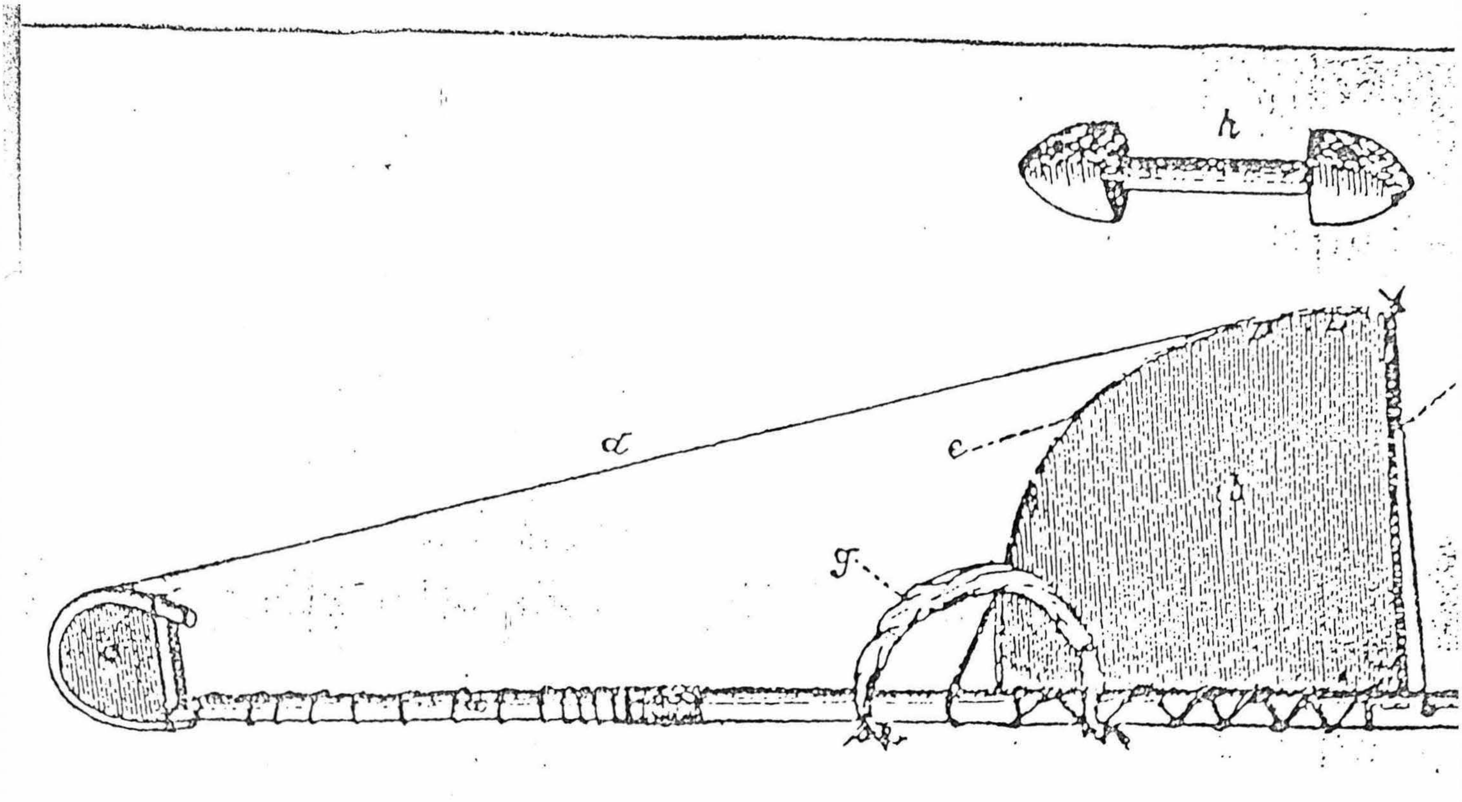
MACHINE FOR CLEANING RAW COTTON (CHARKI).

Sketch taken from George A. Grierson, Bihar Peasant Life, First published 1885, Delhi Reprint, 1975.



A Cotton-carder (Dhuniya) at Work.

Sketch taken from George A. Grierson, Bihar Peasant Life, First published 1885, Delhi Reprint, 1975.



Cotton Garder's Bow (*dhunki, dhanuhi, dhunethi, dhunaith, dhunhath*) and Mallet

Sketch taken from George A. Grierson, *Bihar Peasant Life*, First published 1885, Delhi Reprint, 1975.

(a) The flexible piece of wood acting as a bow (*danti, danta, danri*)

(b) A broad wooden board (*phareha, pharauta, pharuha, pharha*)

(c) The bridge over which the string is passed (*mangi, matha, mathwa, magwasi*)

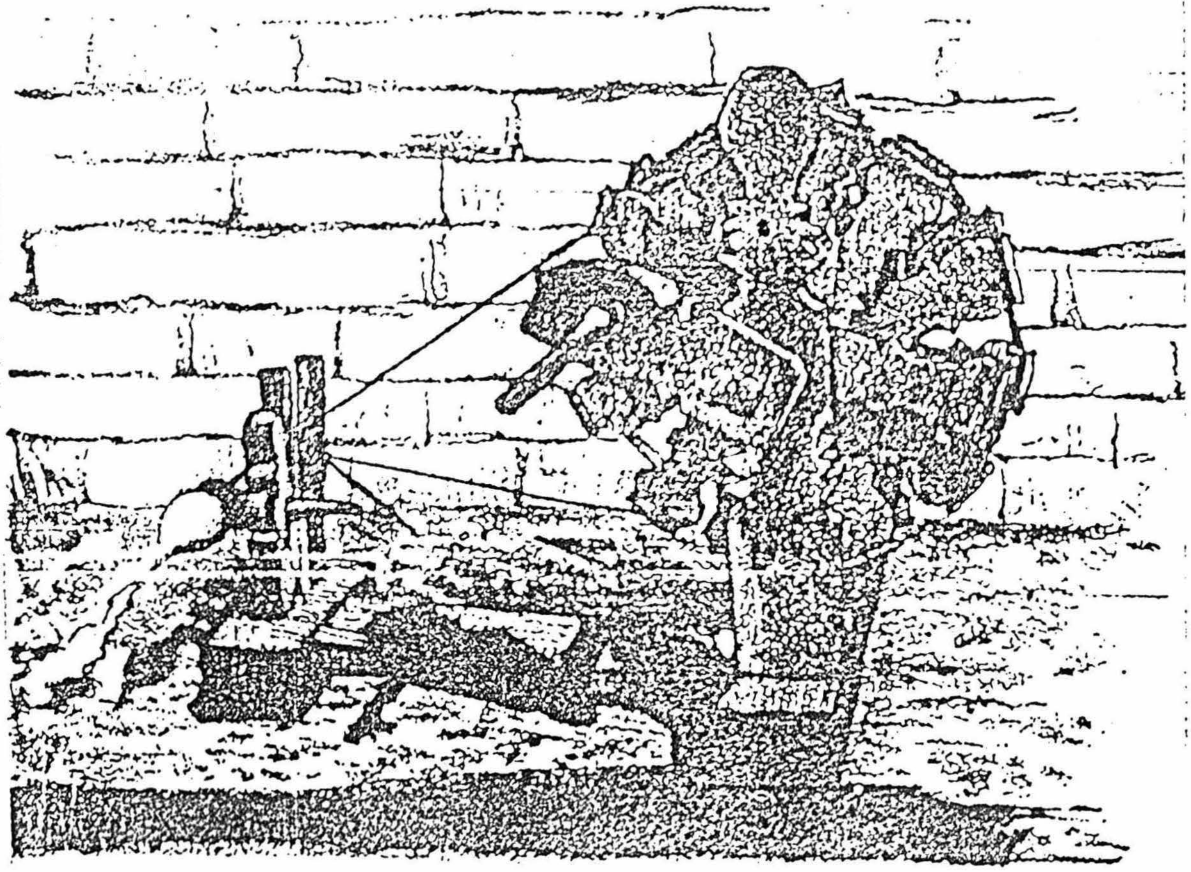
(d) A leather string (*tant, roda*)

(e) A leather strip acting as a sounding board, lying along the round edge of the *pharcha,* on which the string rebounds, called *puchhet, puchheta, pachhauta, kankar, puchhauta.*

(f) A stout leather string along the outer side of the *phareha,* to one end of which the *tant* is attached, while the other end is fastened to the *danti.* It is used to tighten the *tant,* and is called *ghirchi* or *ghurchi.* When pegs are used for tightening this, they are called *biri* or *biriya.*

(g) The *hathhar, hathgar* or *hathkar, hathra, hatha* and *muthwara* is a loop of string under which the left hand is passed to hold the machine steady.

(h) The mallet for twanging the bow, of wood, shaped like a dumb-bell. It is held in the right hand, and the *tant* is struck and twanged with it. It is called *jista, dista, dasta, distha.*



THE SPINNING-WHEEL (CHARKHA).

Sketch taken from George A. Grierson, Bihar Peasant Life, First published 1885, Delhi Reprint, 1975.

The usual and the more speedy implement employed in ginning the cotton was the *charkhi* or the cotton gin. This was a simple double roller machine. Its essential parts were two parallel rollers, mostly both of wood, but sometimes one of wood and one of iron. To these a revolving motion towards each other was communicated by means of a crank handle or wheel at one end or both ends. The effect was that the cotton was pressed through and pulled off the seed, which was too large and hard to pass through.[129] On an average the *charkhi* produced from six to eight pounds of clean cotton per day for each man or woman engaged in the work.[130] If Watt's assertion that the *charkhi* was the more regular device is correct then it would follow that the inferior variety of raw cotton was not popular.[131] The other variety noted at Patna was priced at Rs. 10 per *maund* in 1800.[132]

Following the ginning of the cotton, the cotton fibre needed to be loosened and separated (scutched). Scutching also removed the dirt, dust, and the knots. This was achieved by the primitive method

---

129 G.A. Grierson, *Bihar Peasant Life: 62-63,* gives an account of the *Charkhi* used in the sub division of Madhubani, in North-East Tirhut, in 1879. Also, Ishrat Alam, 'Textile Tools': 130; Rana Firdaus, 'A Note on Textile Crafts Depicted in Indian Paintings', *POIHC*, 1982: 321-22; Watt, *A Dictionary*: 153.

130 Watt, *A Dictionary*: 153.

131 H.K. Naqvi, *Urban Centres and Industries*: 149.

132 F. Buchanan, *Patna-Gaya*, vol. II: 649.

of beating cotton with a stick. This method of scutching cotton was found side by side with the bow string device.[133] But beating cotton with stick had its own hazards. Instead of loosening, it would break the fibres. Therefore, the bow string device was much better. Buchanan points out that the *dhuneya* would card the cotton by a bow like instrument called *dhoniat* in Purnea.[134] In Gaya it was called *dhunethi*, in South Munger and South East Tirhut, *dhunaith* and in South Bhagalpur, *dhunhath*.[135]

The bow string apparatus consisted of a piece of bamboo stretched into a curve and joined together by means of a leather string called *tant*. Only the *sembhal* and *kepas-harbaceous* cotton was cleaned thus. The bow was put into contact with a heap of cotton and the ginner would strike the string with a heavy wooden mallet. The mallet was called *dihista* in Purnea *dasta* in Patna, *distha* in South Munger, *dista* in Tirhut and South Bhagalpur.[136] The mallet had double tapering heads and is shaped like a dumb bell. In operation

---

133 Both the methods of beating with a stick and the bow string device are illustrated in the *'Patna Kalam'* paintings of the 19th Century - Patna Museum. Both these methods are also illustrated in Mughal maniatures 'Weavers at Work', cited in S.P. Verma, *Technology in Mughal India, Evidence of Mughal Painting.*

134 F. Buchanan, *Purnea;* W.W. Hunter, *A Statistical Account of Purniah vol. XV:* 357.

135 Grierson, *Bihar Peasant Life*: 165.

136 *Ibid.*

the ginner held it by the middle of his right hand. The ridge of the upper head gripped the bowstring or *tant* when the ginner struck the string and twanged it with the mallet. When so struck, the bowstring became very tense and slipped off the ridge. This induced strong vibrations, which opened the knots of the cotton and loosened its fibre, shook off the dirt and raised it to a dowcy fleece. The *dhunki* was not allowed to rest on the ground, but it was supported in the air by the *hathkar*, (*hathgar*, *hathhar* or a loop of string, passing over the wrist, and would spring up and down as the *tant* was twanged.[137] This apparatus is still in use and the cotton carders or *'dhuniyas'* are still a part and parcel of the city and the village environment in India.

The next operation after ginning and carding was spinning. The spinning equipment consisted of two sets, the spindle for finer yarn and the spinning wheel (*charkha*) used for coarse yarn. Buchanan points out that in the south east corner of Purnea some fine thread was made with the small iron spindle (*takuya*), but by far the greater part was coarse cotton and was spun by a wheel. Buchanan also found that in Purnea women would spin with a fine spindle, made of bamboo to which weight was given by a little ball of unbaked clay.[138]

---

137 The bow and mallet have been described by Grierson, *Bihar Peasant Life*: 65; Also Ishrat Alam, *Textile Tools*: 131; E. Baines, *History of the Cotton Manufacture*, London, 1835: 67.

138 F. Buchanan, *Purnea*:: 537.

The spindle has been described by Forbes.[139] The spindle had crochet like hook at the top in which the yarn was caught while undergoing the operation of twisting. It was usually weighed with a whorl i.e. some clay or wood was attached to its bottom in order to lend it weight. The dimension and the weight of the spindle was largely determined by the strength of the yarn desired and the fibre used. The spindle may or may not have been accompanied with a distaff. In Purnea, women preferred not to use the distaff.[140] The latter was a plain or ornamental stick from one foot to three inches long. It was used to hold prepared fibres from which the thread was being spun. It was held under the left arm of the operator and was generally used for long fibres, as of flax. The short fibres were spun from carded rolls, which were often kept in a pot or a basket. The spindle while in operation was turned round with the left hand and the cotton was fed with the right. As the fingers needed to be kept dry, the women, while spinning used a chalky powder, as a measure against perspiration. Unencumbered with any heavy equipment the women spinners could, carry on their profitable occupation as long as their hands were otherwise disengaged.

---

139 Forbes, *Studies in Ancient Technology*, vol. IV: 156

140 F. Buchanan, *Purnea*: 537.

The coarse yarn was spun on a heavy one-thread wheel of wood, roughly carpentered and turned by hand. Buchanan points out that in Patna cotton was being "spun with the small wheel common in India".[141] The spinning wheel was called the *charkha*. In South West Shahabad it was called *rahta* and in the South-east *jarkha*.[142] Forbes gives details on the wheel. At one end of a baseboard, two long uprights were fixed in which the driving wheel axles were placed. Two shorter uprights at the other end supported an ordinary wooden spindle with its whorl horizontally. The whorl was now transformed into a pulley, a groove being cut into it to take the cord running to the large driving wheel. The spinners would sit in the ground along side the wheel. Some fibres of the carded cotton were taken with the left hand and attached to the end of the spindle, which is then revolved by turning the driving wheel with the right hand. As the left hand held the thread, feeding it with more fibres until the hand was at each turn and thus the turning of the spinning wheel transmitted a twist to the stretched thread held at an oblique angle to the spindle. When the full arm length of thread had been spun the spinner stopped the

---

141 F. Buchanan, *Patna-Gaya,* vol. II: 649.

142 Grierson, *Bihar Peasant Life*: 47

wheel, and gliding it at right angles to the spindle would wind it up slowly by spinning the wheel in a contrary direction.[143]

In Bihar the majority of the cotton goods produced belonged to the medium and coarse quality. Buchanan states "The greater part of the cloth made in every division is coarse".[144] In Shahabad, Buchanan reported that with the exception of the area near the Son, where finer cloth was made, nearly all the cloth manufactured was of the coarsest description.[145] It can thus safely be assumed that the spinning wheel was more frequently used than the spindle and a sizeable part of the aggregate yarn employed was being produced thus. This may have been one reason why, after the 1630's, when there was a sudden increase in the demand for piece goods for export, the region was able to furnish the requisite amount. This would not have been possible without an adequate and constant supply of yarn. Moreover, there does not appear to have been any marked upward movement in the prices of the coarser varieties during the period under review. This suggestion cannot be backed by concrete data, but a rise in prices of coarser cloth would certainly have been noticed

---

143 Forbes, *Studies in Ancient Technology,* vol. IV: 156, A similar description of the spinning wheel used in Madhubani in 1879 is given by Grierson, *Bihar Peasant Life:* 142-143.

144 F. Buchanan. *Patna-Gaya,* vol. II: 647

145 F. Buchanan. *Shahabad:* 409; *W.W Hunter, A Statistical Account of Shahabad District,* vol. XII: 260.

by the European merchants, and probably resulted in a shift in the area of their business.

According to Buchanan's estimate in 1811 the total output of yarn at Patna was worth Rs. 23,67,277/- and was spun by 330,426 women spinners, each spinning worth Rs.7 *and* 2 *anas* and 8 *pies*. The total margin of profit realised amounted to Rs. 10,81,005/- or Rs. 3 and 4 *anas* per head.[146] Buchanan further reports that at Patna, during Vinsittart's period as the customs master, the import duty calculation showed that the average annual import of cotton was valued at Rs. 3,50,000, which represented 35,000 *maunds* of cotton at the rate of Rs, 10 per *maund*. Deducting 1000 *maunds*, used for stuffing purposes, the remaining 34,000 *maunds* had been "spun on the small wheel common in India".[147] As is borne out by this statement and is also categorically asserted in the *Fatawa Alamgiri*, the thread used to be sold by weight or tale or could be exchanged with other commodities sold similarly, like cotton.[148] Sometimes the yarn used to be starched prior to weaving either for the sake of adding to its weight or to facilitate the weaving process.[149] In the same way

---

146 F. Buchanan, *Patna-Gaya*, vol. II: 647.

147 *Ibid*: 649.

148 *Fatawa:* 169-700, cited in Naqvi, *Urban Centres and Industries:* 153

149 F. Buchanan, *Patna-Gaya*, vol. II: 653.

the weavers before hand also dyed the yarn, for certain clothes like *duriyas, charkhanas* of Bhagalpur.

The yarn was next woven. The best season for weaving fine cotton was from middle of May to middle of August owing to an excess of moisture in the atmosphere but it could be produced throughout the year.[150] In general the out turn of all species of cloth was much greater in summer than in winter.[151]

The process of weaving, consisting of interlacing at right angles the two series of threads, the wrap and the weft. The instrument by which this was done was the loom. Buchanan reports, "The loom is of an imperfect structure usual in India".[152] It consisted of two bamboo rollers, serving for both the wrap and weft. A single shuttle, also performing the job of a batten, was made like a large netting needle and a pair of paddles or treadles completed the weaving requirements.

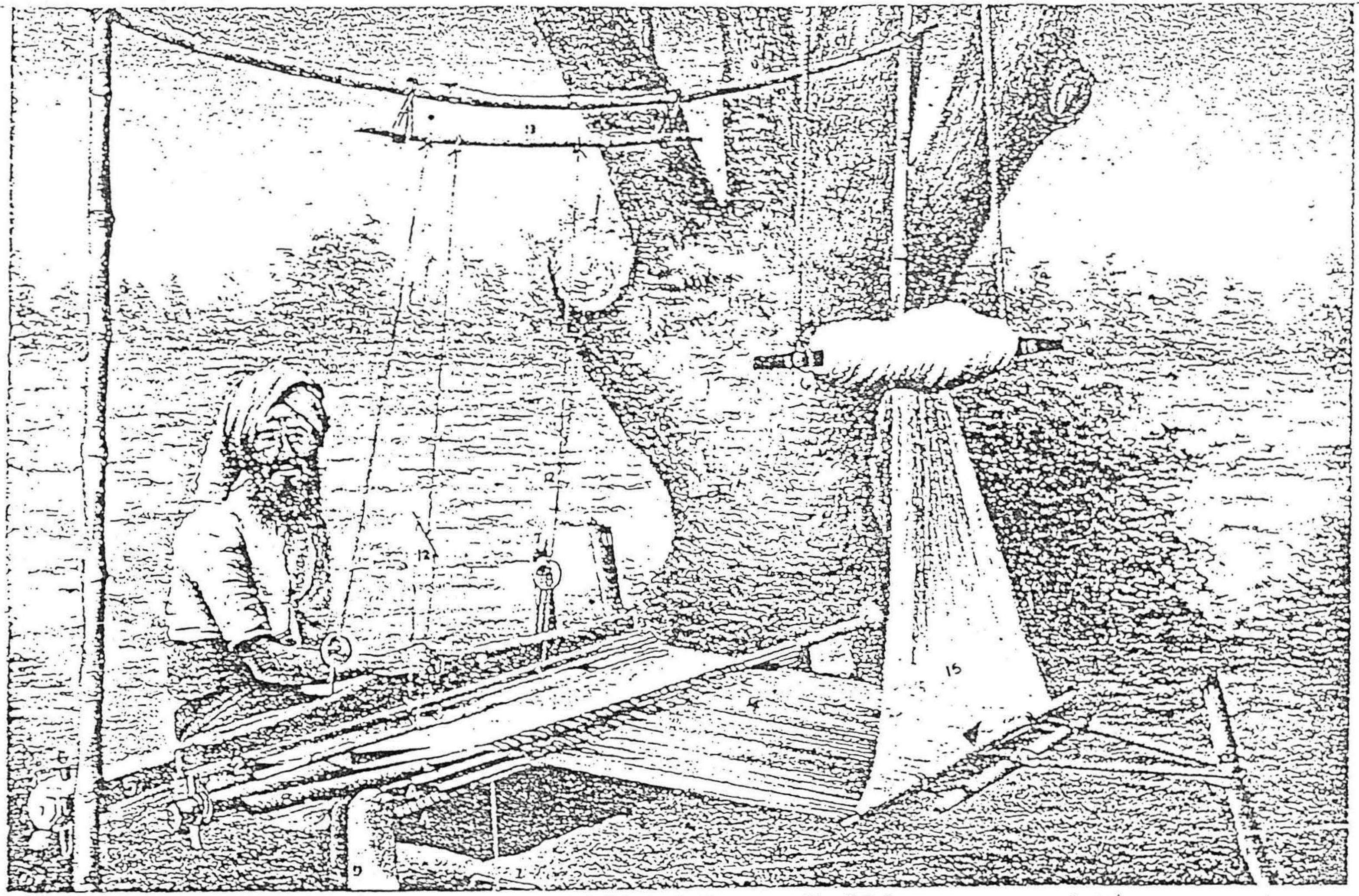
The weaver erected his loom under a shed or the roof of his own house. A pit was dug in the floor to afford room for the lower part of the gear and for the weaver's legs as he sat at work. Above the loom a

---

150 J.A Taylor, *A Descriptive and Historical Account of the Cotton Manufacturers of Dacca in Bengal*, London, 1857:37

151 H.R. Ghosal, *Economic Transition in the Bengal Presidency* (1793-1833), Patna, 1950.

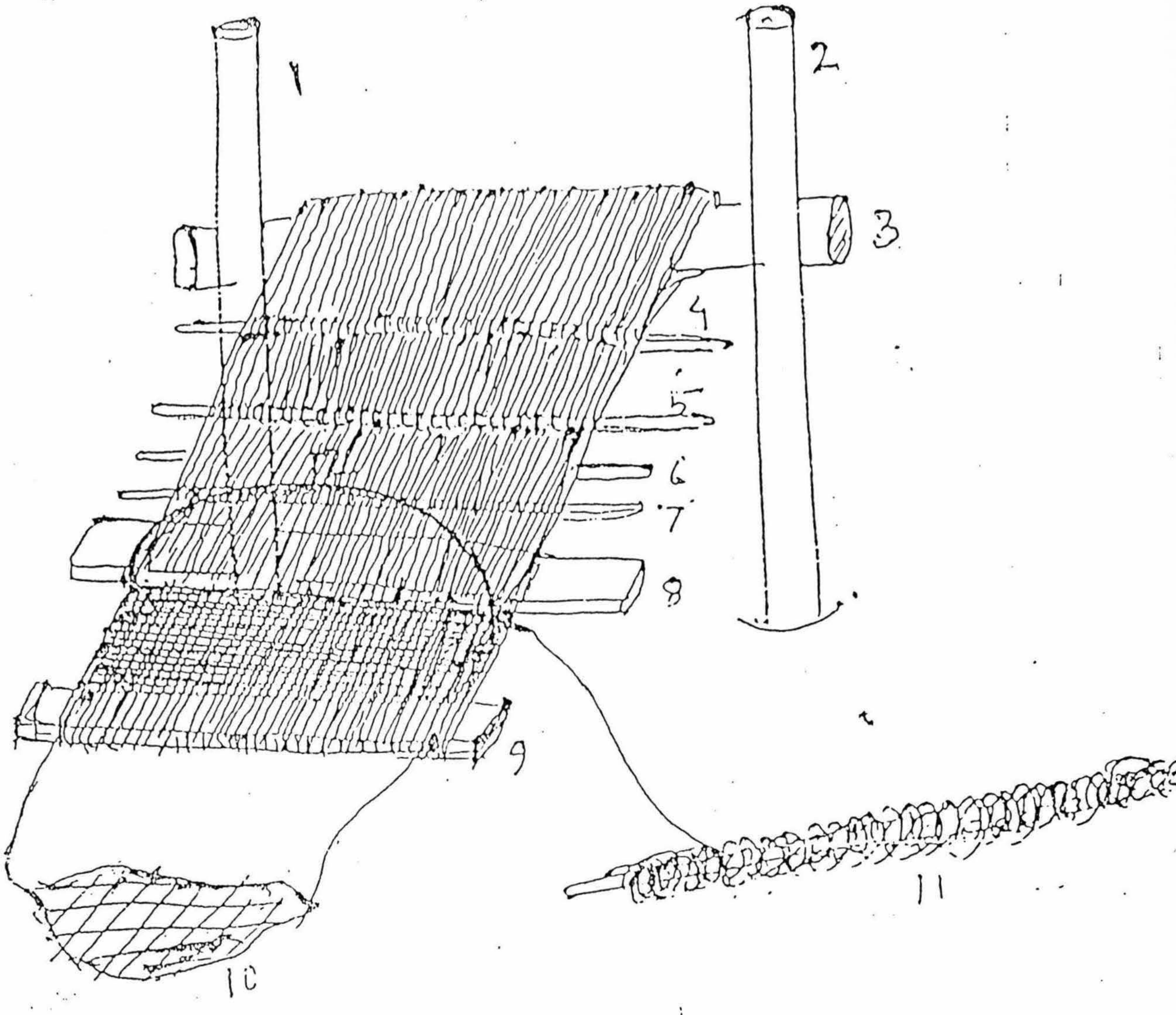
152 F. Buchanan, *Patna-Gaya*, vol. II: 653.



The Country Loom (Kariyah).

1. *Hatha.*	5. *Chaupal (roller).*	9. *Kanaili.*	13. *Kar (upper beam).*
2. *Rāchh (comb).*	6. *Jibhela.*	10. *Agela.*	14. *Pāi (woof).*
3, 3. *Bai (heddles).*	7. *Bamrāri.*	11. *Dorbandha.*	15. *Sirāra.*
4, 4. 4. *Sar.*	8. *Kharkhaut.*	12, 12. *Nachni (heddle-levers).*	16. *Tungni.*

Sketch taken from George A. Grierson, *Bihar Peasant Life*, First published 1885, Delhi Reprint, 1975



1-2 – Bamboo poles called 'Khunta'
3 – Wooden cross bar called 'Dadlung'
4 – Upar Kathi
5 – Dhoral Kathi
6 – Bo Kathi
7 – Phoral Kathi
8 – Beng – Weaving is done with the help of 'BENG'
9 – Kapta – The base material of loom, made of wood
10- Petar – the women sit, while weaving
11- Phodra – The reeled threads
12- Chhitka – (used while weaving cotton cloths)
Chhitka is a bow type structure, affixed on the loom, so as the threads do not get spread

Sketch of a Loom (Kargah) used by Rajbansi women for Weaving wool, jute & cotton clothes. Araria (earstwhile Purnea) District.

Sketched by the Author

sort of canopy was erected consisting of a mat or two, to protect the web from dust and rain falling from the roof. Most of the equipments were made of small pieces of bamboo or reed tied together with twine or thread. The workmanship of the tools was so crude and simple that every weaver could make them himself, even though to save time and trouble they preferred to purchase it readymade in the bazaars.[153]

The process of weaving was as follows:[154] The weavers would first undo the thread, then wind it on a small piece of reed *narkul* or bobbin. These are used to insert the shuttle to make the woof (*bana*) and are wetted before use. On the larger reeds is wound the thread which is used for laying the warp or the *tana.* The *narkul* stalks are stuck upright in ground at certain intervals. Wedges on the end of long reeds fix two large naris. A pérson walking along roùnd the uprights drop by a skilful movement of his hands, the two threads one from each *nari* so as to lap on the alternate uprights. When the warp is thus laid, it is dressed with a paste of flour and dried. It is then

---

153 A.J Taylor, *A Sketch of the Topography and Statistics of Dacca,* Calcutta, 1840: 168.

154 A Barlow, *History and Principles of Weaving,* London, 1878: 62-64 and R.J. Forbes, *Studies in Ancient Technology* have described the process of weaving in the coastal regions of Bengal and Gujrat. H. Hoey, *A Monograph on Trade and Manufactures in Northern India,* Lucknow, 1880. (1881) gives an account of the weaving practice pertaining to Lucknow. In the context of Bihar, Grierson, *Bihar Peasant Life;* gives an account of the weavers loom and the technique of weaving, ; Also N.G. Mukherji, A Monograph.

taken to the loom and each alternate thread is drawn through a hole in one leaf of beadles and the other thread is drawn through the interstices of the batten. The ends are finally fastened to the beam. The other end of the warp is attached to a hook or a peg or any other contrivance swung from or fastened to the ceiling. There is but one beam in the loom. The place of the second is taken by the three reeds, which are disposed so as to prevent the threads from becoming entangled behind the beadles. To the beadles are attached treadles and by their movement the shed is produced through which the shuttle flies.[155] At Patna the shuttle was passed through, by two to eight or ten workmen who brought the threads close together with wooden combs in place of a reed".[156]

In Bihar, W. Hodges (in 1781) came across weavers busy at their looms, in the cool shade of trees attended by their friends and singing soft music.[157] Perhaps the weavers worked outside if their houses were not large enough to accommodate their whole length of piece of cloth. However, when feasible the weavers chose to work "within their houses or in a shed, whenever it could be managed and then the roof of the shed was used for fastening the balances of the

---

155 *Ibid:*

156 F. Buchanan, *Patna-Gaya*, vol. II: 656.

157 William Hodges, *Travels in India during the Years 1780, 1781, 1782, 1783,* London, 1793: 27

gear."[158] It is also possible that some of the weavers reached a position where they would maintain their own establishments. Buchanan observed at Patna-Daudnagar one shop where there were sixteen carpet weavers besides the dyers and spinners.[159]

After weaving the cloth was sent to the bleachers and then to the dyers. The bleachers used lime, soda and soap to boil the cloth. This was followed by steaming and smoothing it by beating it vigorously with a beetle (*mungri*) or a heavy wooden stick on a smooth stone plank, then washing it clean.[160] This beating system was greatly disapproved of by the European traders, as it was apt to injure the goods of finer varieties causing reduction in their price.[161] On the other hand it was quite economical for the washerman, as by doing so he could save on the lemons. Lemon, according to Tavernier, was a necessary ingredient in bleaching.[162] The cloth was starched to give it a whitish effect, the starching agent in Patna being a local root called *kundri*.[163] It was thence spread out in the open sunshine to dry.

---

158 F. Buchanan, *Patna-Gaya*, vol. II: 656.

159 *Ibid.*

160 *Ibid:* 616.

161 Foster, *EFI*, 1646-51:

162 Tavernier, *Travells in India*, vol. II: 28

163 F. Buchanan, *Patna-Gaya*, vol. II: 653

The bleaching was not up to the satisfaction of the English factors. The quality, of *amertees* of Patna were so poor with regard to their local washing, that the factors deemed it more desirable to buy them brown or even semi-washed but unscratched at Patna and have them bleached elsewhere.[164] A further cause of complaint in local washing by the factors was that in conformity with the custom, but for obscure reasons, the weavers were required to tear off a bit from the cloth while giving it for washing, so that the total length of the piece was shortened[165], a contingency that could not have been favourable to business.

The cloth was now ready for treatment with colours by printing, painting or dyeing. This was a rather elaborate, tentative and uncertain process.[166] Even in plain dyeing each of the various shades required a separate set of treatment. This was complicated by the use of crude natural resources instead of ready-made dyestuffs, with a few exceptions such as indigo and *lac* for blue and red respectively. Presumably it was due to the same reason that while the existence of dyers (*rangrez*) is noted as a matter of course in the sources,[167] the reference to makers or dealers of dyestuffs is rare unless they were

---

164 Foster, *EFI*, 1618-21: 205,213.

165 *Ibid*: 205.

166 P.R. Schwartz, *JITH*, vol. II. 1956: 9-16.

167 F. Buchanan, *Patna-Gaya*, vol. II: 649.

nilgars (indigo makers), *ach farosh*, *gulalsaz* vermilion makers).[168] It is evident however that the dyers themselves prepared their own decoctions in prescribed proportion. They combined together the three jobs of making the dyestuffs, dyeing and even printing. The dyers were also far less mobile than the weaver and had to restrict their movement to localities known for specific advantages in water for the purposes of dyeing.[169]

---

168 *Ibid.*

169 Lotika Varadarajan, 'Impact of the European Traders in Indian Handicraft and Industries', *Indica,* vol.16, No. 1-2, 1979: 215.

CHAPTER IV

SILK TEXTILE

Silk occupies an important place in the textile segment of the craft structure of Bihar in seventeenth and eighteenth centuries. Raw silk gradually became an exceedingly important item of trade for the East India Company. The Company turned its attention towards Bengal silk when Sir Thomas Roe failed to persuade the "Sophy" of Persia to grant to the East India Company the monopoly of trade in Persian silk, in 1617-18[1]. A beginning was made with the setting up of a 'factory' at Patna in 1621.[2] In the first half of the seventeenth century, Patna was famous, for being an important trading and production centre of silk cocoons and textiles.[3] Silk cocoons, skeins (yarn) and silk cloth of different varieties were then available at Patna. In fact apart from what was recognized as silk, by the travellers familiar with the material, Bengal produced at the same period fabrics of some fibre which they compared with silk. Pyrard speaks of the silk herb, Linschoten of a kind of cloth, spun from a herb; Caeser Frederic of cloth of herbs, "a kind of silk which groweth among the woods" and Ralph Fitch of cloth which is made of grass "which they call yarn, it is like a silk."[4] Most probably, they

---

1 J. Geoghegan, *Some Account of Silk in India especially of the Various Attempts to Encourage and Extend Sericulture in that Country*, Calcutta, 1872:1.

2 W. Foster, *E.F.I.*, 1618-21: 198.

3 J. N. Sarkar, 'The Silk Trade of Patna in the Early Seventeenth Century', *I.H.Q.*, vol. XV: 208.

4 J. B. Bhusan, *The Costumes and Textiles of India*: 33.

might have referred to the wild silk of Chotanagpur, the origin of which might have been easily attributed, by the oral tradition, to plants in place of insects.[5]

Patna was a centre for production of raw silk. The English Factory Records refer to the production, in Patna of raw silk known as serbandy.[6] Raw silk was also imported into Patna in large quantities from Orissa and more especially Murshidabad and Saidabad in Bengal.[7] This raw silk was universally considered to be the best variety of unwound silk or *serbandy* silk (i.e. cocoons).[8] Some idea of the amount of imported raw silk can be formed from the observation of Palsaert in the early seventeenth century (1620-26), that Patna yielded 'annually 1000 to 2000 *maunds* of raw silk'.[9] Though a considerable quantity of raw silk came from Bengal a certain amount might have been imported from some other parts of Bihar also.[10] In July, 1620, the price of *Serbandy* silk at Patna was Rs. 1000 gross a *maund* (of 40 *seers*, a *seer* weighting 34/$^1/_2$ pice). Palsaert also informs that the best raw silk available at Patna sold (evidently at Agra) at 16 or 17 *'mohurs'* a *maund* (of 50 1bs i.e.

---

5 J. N. Thakur, 'The Silk Industry in Bihar', *JBRS,* vol. 58, No. 1-4, 1972: 288.

6 W. Foster, *E F I,* 1618-21: 46, 197.

7 Thomas Bowrey, *A Geographical Account:* 230-32.

8 *Ibid.*

9 Palseart, *Remonstrantie*: 17.

10 J. N. Thakur 'The Silk Industry in Bihar': 288.

an *Akbari maund* of about 55 lbs).[11] This would come to Rs. 110-120/-per *maund* of raw silk taking a *mohur* equivalent to Rs. 7/- only.

In 1620-21,when Hughes and Parker, as members of the First Commercial Mission visited Patna they found that silk goods, specially silk skein (yarn) was sold in the Patna market very cheap and these were available in plenty. It was 35 percent cheaper than at Agra. But this advantage was obviated on account of the monopoly exercised by the Bihar governor over its sale. The silk had to be brought through his agent, the town Magistrate (*kotwal*), in Patna.[12] He charged 25 to 37½ percent higher than the original price.[13] To overcome this disadvantage the factors of the First Commercial Mission to Patna 1620-21, tried a unique, but unsuccessful, experiment in winding skein silk from cocoons (*serbandy*) in a *karkhana* with 30 silk winders.[14] On November 14,1632, Mundy observed that raw silk could be procured much better and cheaper elsewhere.[15] Referring to the silk experiments of the First Commercial Mission to Patna and the reasons for their failure, Palsaert observed "Formerly the English had a factory at

---

11 Palsaert, *Remonstrantie*: 17.

12 Peter Mundy, *Travels*, vol. II: 371.

13 Thomas Bowrey, *A Geographical Account:* 230-32.

14 Foster, *England's Quest* ***Trade***: 314-315; W. Foster, *EFI*, 1618-21: 198.

15 Peter Mundy, *Travels*, vol. II: 151.

Patna for the purchase of raw silk but, owing to heavy losses, the trade has been discontinued for 6 to 7 years and does not appear likely to be resumed; beside they are now getting Persian silk at a more reasonable price."[16] Hughes quickly observed the value of tasar goods, which were imported to Patna at the rate of "40 or 50 corge" (score) i.e. of 800 or 1000 pieces every year from Lower Bengal. So he invested Rs.4000 in them on trial. However, the attempt did not succeed and it was left to Streynsham Master to start the trade in tasar goods in 1679.[17]

Taffeta, a kind of silk, was also manufactured at Patna in the second half of the seventeenth century. In 1668 the Bengal Factors were asked by Surat Factors to send 2000 pieces of Patna Taffetas, 40 to 60 yards long and 1000 pieces, 10 to 11 yards long.[18] The Taffetas made at Patna were better than Kasimbazar which were sold from 9 to 109 *as* the long yard.[19]

In the early seventeenth century, Baikanthpur (Baikatpur), about ten miles east of Patna, was an important centre of silk manufacture. It produced "infinite quantities", of *alachah* or *lacha* and *tuckrees* or *bekuntpoores*. Both were intended for being used

---

16 W. Foster, *EF.I.*, 1618-21: 258; *I. A*, vol. 43: 105.

17 J. N. Sarkar, 'The Silk Trade of Patna': 221.

18 W.Foster, *EFI.*, 1668-70:246.

19 C.R. Wilson *Reports and Letters concerning the Company's Affairs in Bengal, 1661 to 1685;* Also C.R. Wilson, *Early Annals of the English in Bengal,* vol. 1, London, 1911: 378-9.

as women's petticoats.[20] The *lacha* cloth was woven of Tusser silk and cotton thread to present the appearance of cardamoms (*ilaichais*) and was also called *elaichi* silk.[21] Bernier says that *alachas* were silken stuffs striped.[22] One piece of this cloth was 5½ yard long and ¾ yard broad. Eight to twenty pieces of *baikunthpuri elaichi* could be purchased for Rs. 10, Rs. 12, Rs. 16 as per quality. These *becuntpoore layches* were very popular in England where they were sold at good profit.[23] The Mughal traders for Persia generally purchased it. On 4th October 1620, Patna sent to Agra 17 scores of *baikutpuri elaichi* pieces to be sent to Persia.[24] Munucci has also referred to a *alachak* silk cloth.[25]

With the assumption of Bengal's *diwani* by the East India Company in 1765, the Company's investment in Bengal's silk yarn (raw silk) was linked with the question of remittance of revenue to England. If the money collected in revenue could be invested in the purchase of Bengal's silk yarn and this in turn sold in the English and continental markets at considerable profit, the net amount remitted in revenues could be substantially increased. The call of the Company's Court of Directors in London to its officials in

---

20 W.Foster, *EFI*, 1618-21: 197.

21 *Ibid.*

22 Bernier, *Travels in the Mughal Empire*, vol. I: 136.

23 W.Foster, *EFI*, 1618-21: 197.

24 *Ibid.*

25 Manucci, *Storia*, vol. II: 424.

Bengal to raise the amount of 'investment' in raw silk became increasingly strident.[26] "It is in the increase of this Article of our investment that we chiefly depend for bringing home our Revenues, the Importation being a national benefit and the Consumption more unlimited than that of Manufactured Goods. You must therefore continue to bestow your greatest attention to it."[27]

John Kenn of the English Company pointed out the close link between the silk and money market in Kasimbazar and in Patna. Kenn writes, "The exchange of money from Kasimbazar to Patna and Agra rises and falls as the said silk finds a vent in Patna or Agra".[28] The manufacturing at factories in Hoogly, Malda, Patna, and Balasore, which supplied silk goods to England in abundance, was co-ordinated and systematized and the Directors of the Company remedied some of the serious defects found in these factories. All this largely contributed towards a phenomenal increase of silk export to England eventually bringing about an increasing resistance from the clothiers. the weavers and the Turkey merchants.[29]

---

26 Harbans Mukhia, 'Social Resistance to Superior Technology': 56-57.

27 Letter from the Court of Directors, 16 March 1768 in N.K. Sinha (ed.), *Fort-William-India House Correspondence*, vol.V, 1767-1769, New Delhi, 1949.

28 Radhakamal Mukherjee, 'The Economic History of India: 1600-1800', *Journal of the United Provinces Historical Society*, (hereafter *JUPHS)*, vol. 16(1): 179-80; Wilson, *Early Annals*, vol.1:376.

29 Mukherjee, 'The Economic History of India': 180.

There was remarkable progress in the silk industry of Bihar in 1788 which is evident from the fact that the cultivation of the mulberry spread over from Bengal to Bihar. It appears from the contemporary records[30] that in 1788, Mr. J. Henderson (senior), Surgeon of Gaya, made an attempt to "rear silkworms and the mulberry plant in Bihar" an attempt which proved highly successful. In the state of Bihar the manufacture of silk also made great progress under Mr. Burt in the same year.[31] During the same period Mr. T. Law, the collector of Gaya, made an endeavour to encourage the silk industry in the district of Gaya.[32] Purnea and Bhagalpur were recognized in the 18th century as the mulberry producing districts of Bengal.[33]

In the eighteenth century, the tasar silk industry made considerable progress among the craft complexes of Bihar. The manufacture of cloth wholly of tasar silk or a mixture of tasar and cotton, was concentrated in Bhagalpur, Purnea, and Patna. There were a few weaver families in the three vicinities of Patna – i.e. Gaya, Nawada and Fatuha and to a limited extent Shahabad. In

---

30 Pub, (*Official Correspondence*), 30th May, 1788, No. 33, cited in J.N. Thakur; 'Silk Industry in Bihar': 290 *B.P.P.* vol XXIX: 38.

31 Press List of India Office, 1789-99, vol. II: 45. General Letter to the Court of Directors, dated Fort William, 5th November, 1789; *B.P.P.*, vol. XXIX: 38, cited in J.N. Thakur, 'Silk Industry in Bihar': 290.

32 *Pub.Official Correspondence*, 25th June, 1788, No. 27, cited in J. N. Thakur, 'Silk Industry in Bihar': 290.

33 C.R. Wilson, *Reports and Letters Concerning the Company's Affairs in Bengal*, 1661-1685.

Gaya, tasar weaving was confined to a few localities, like Sadar division and sub-division of Nawada and Aurangabad (Daudnagar). This manufacture gave employment to a few thousand weavers in these districts.[34] There were a few *tanti* weavers in the Godda sub-division of Santhal Parganas and the political state of Saraikela in Singhbhum district.[35]

In Bhagalpur the people engaged in tasar weaving were the *patwas, tatwas, tantis, golas* and *momins,*[36] the latter being Muslims. Most of them lived in Champanagar, Nathnagar, Rampur, Kutubganj, Kelahavi and other places around Bhagalpur.[37] In Patna the tasar cloth was made mainly by the *tantwas.*[38] In Gaya and the Godda subdivision of Santhal Parganas the tasar weaving was done by the *patwas.* In fact the *patwas* of Godda were really residents of Gaya. A few had settled in the northern part of Godda and had taken up their hereditary occupation as tasar weavers. They were the only class of people who manufactured silk cloth in Godda, confined themselves to a single village, called Mal Bhagaya and numbered only 40. The *patwas* of Godda also cultivated as an additional source of income. They were assisted by the *paharias,*

---

34 N.G. Mukherji, 'A Monograph on the Silk Fabrics of Bengal', *Art in Industry Through the Ages,* vol.1, New Delhi, 1876: 109.

35 *Ibid:* 110, 117.

36 *Ibid:* 109; W.W. Hunter, *A Statistical Account on Bengal, District of Bhagalpur District,* vol. XIV: 181.

37 N.G. Mukherji, *A Monograph:* 109.

38 *Ibid:* 126.

santhals, bhuiyas, khetoris in preparing the material, but these classes took no active participation in the manufacture itself.[39]

It would seem that weavers were more dependent on weaving than spinners on spinning or cocoon rearers on cocoon rearing. Adult males did silk weaving proper in all districts. Women and children assisted them in preparing the thread and fixing the warp.

The tasar mixed silk cloth of Bhagalpur had great reputation.[40] Buchanan reports that in Bhagalpur 3275 looms were engaged in the manufacture of the mixed fabrics around 1810. Of these 3000 were concentrated in the Kotwali division. The mixed cloth most usually consisted of the *duriyas, namunahs chaharkhanahs, baftahs* and *kharisari.* The first four kind of mixed silk was mostly manufactured for export and the last was for local use. About 1/3 of the weavers were employed in making *kharisaris.* The latter thus gave occupation to a larger number of weavers than the other kind of tasar cloth. Buchanan gives a description of the mixed cloth of Bhagalpur. [41]

(i) *Duriyas* – In the *duriyas* the warp consisted of three parts of cotton and two parts of tasar of different colours. The woof was all cotton of one colour, so that the cloth was striped

---

39 *Ibid:* 110

40 E.W. Collin, *Report on the Existing Arts and Industries of Bengal,* Calcutta, 1820: Para 32.

41 F. Buchanan, *Bhagalpur:* 614--15; Montgomery Martin, *Eastern India,* vol II : 273-74. W.W. Hunter, *A Statistical Account* of *Bhagalpur District,* vol. XIV: 181..

length wise, being dyed entirely by the weavers in the thread. The pieces were usually from 20X22 cubits long, by 1½ broad. At an average, they sold at 42 *anas*. The cotton thread cost 33 *anas*, the tasar 10½ *anas*. A man could weave eight pieces monthly.

(ii) *Namunahs* – The *namunahs* were the pieces from 20X22 cubits long and 1¾ broad. It was commonly priced at 44 *anas*. The warp contained about 35 parts of cotton thread, and 21 of tasar, disposed in strips of a different pattern from those of the *duriya*. The woof was all cotton. The cotton cost 21 *anas*, the tasar 14 *anas*. One loom prepared seven pieces a month.

At the time of Buchanan's survey two Mughal merchants, advanced about one lac of rupees for *duriyas* and *namunahs* for Western India. The Commercial Resident of Malda advanced about Rs. 10,000 mostly for the *baftahas* and *namunahs* and about Rs. 90,000 worth of the mixed fabrics were exported by different traders to Calcutta.[42]

(iii) *Chaharkhanahs* – The pieces of the *chaharkhanahs* were about 18 cubits long and 8/7 of cubit wide. The average value was Rs 2½. Each loom could weave 6½ pieces in a month. The warp required 10 parts of cotton and 15 parts of tasar, the woof was 10 parts of cotton and 18 parts of tasar, so that the pieces were checkered. The cotton thread was worth, 6 *anas* and the tasar1rupee 6 *anas*. The dyeing cost was 4 *anas*.

(iv) *Baftas (Baftahs)*:- The *baftahs* were pieces of an uniform colour. The weavers dyed them after being woven. They were the same size as the *namunah*. They only differed from latter

---

42 Martin Montgomery, *Eastern India*, vol II: 274

in that the entire warp was tasar and the woof was cotton. The former cost 18 *anas* whereas the latter 20 *anas*. The dyeing and washing cost from Rs 3 to 5 for 20 pieces, or on average 3 *anas*. The common price of the pieces was about Rs 3. In the month, a loom used to weave 6½ pieces. A popular variety of *bafta* was the *dhupchaya*, of a bright blue colour.[43] *bafta* was in great demand, both locally and for European trade.[44]

(v) The *Kharisaris* – The pieces of the *kharisari* were 12 cubits long and 2 cubits broad. They were like the *duriyas*, but of inferior size and fineness. The tasar cost 6 *anas*, the cotton 7½ *anas* and the pieces on an average worth, 1 10/16 *anas*. The weavers could weave eight pieces month and also dyed the cloth themselves.

The pure tasar silks manufactured at Bhagalpur included *tul*, *maurkanti*, a white silk figured in blue; *lahan gowal* a figured silk worn only by upper castes – *brahmanas, kayasthas* and Rajputs.[45]

In Purnea about 7000 looms belonging to about 4300 houses were employed in manufacturing cloths of cotton and silk mixed called *maldehi*. They worked almost entirely the smaller pieces, from Rs 3-6 value. The Gosain merchants sent this cloth to Western India. Of the 7000 looms, only about 3000 were constantly employed earning Rs 6, 48,000 annually. The other 4000 looms

---

43 W.W. Hunter, *A Statistical Account of Bhagalpur District:* 181.

44 N. K. Sinha, *Economic History of Bengal* vol. I: 10.

45 Hunter, *A Statistical Account of Bhagulpur District*: 181.

were employed for half a year earning Rs 4,32,000. Thus about Rs. 10,80,000 worth of mixed fabrics were made in the Purnea district.[46]

In Purnea Buchanan observed that there were 125 houses of weavers of pure silk possessing 200 looms. They chiefly made a coarse silk cloth for wrapping round the waists of women and children. It was worth Rs 1-10-0, to Rs 1-12-0. The silk cost Rs 1-3-0. A man could usually make 12 pieces a month. The total value of the goods was Rs 48600 and the raw silk required was worth Rs 34,200. The weavers also made Rs 3000 worth of *chikta* silk, which was spun from the cocoons that had burst.[47]

In Shahabad, there were 60 families of *patoyas.* These weavers worked in cotton cloth with tasar silk borders. They were holding 90 looms. These weavers earned 5 *anas* profit on each piece of *dhuti* they manufactured. A man and a woman could weave and warp 7 pieces a month. Each loom could make a profit of Rs. 26 a year. However, the man or his wife, besides weaving or warping would also wind 2000 tasar cocoons, which cost Rs. 10 thereby earning a profit of Rs 24. The annual profit earned by the *patoya* or his wife would thus be Rs 50. This was considered a poor provision in Shahabad district but the *patoyas* lived better than the other common weavers.[48]

---

46 F Buchanan, Purnea: 540.

47 *Ibid*: 539.

48 Buchanan, Shahabad: 411; Martin Montgomery, *Eastern India*, vol. III :548.

In the Bihar sub division of the Patna district a coarse tasar silk cloth called *potia* was manufactured on a small scale. It sold for Rs. 6 per piece of 10 yards. A few *jolahas* in Patna also made very fine Muslin, in imitation of Dacca Muslin, in Assanagore within Bihar town. The *tani* of this cloth was of cotton thread and the *bhurni* (woof) was of tasar silk. The weavers also made flowers of different patterns on the muslin. This was done while the cloth was on the loom.[49] Tasar cocoons were imported into Patna from Bhagalpur and Hazaribagh district. Cocoons were purchased in batches of 325 *gandas* locally called *hari*. The price varied from Rs. 5 to Rs. 8 per *hari*.[50]

In the vicinities of Fatuha (Phatuha), Gaya, Nawada the weavers made cloth wholly or partly of tasar silk. In Fatuha alone there were 500 weaver families at the time of Buchanan's survey. There were four qualities of the tasar silk cloth available here.

(i) *Banusa* – It was 18 cubits long by 2-1/7 cubits wide. It consisted of tasar and cotton warp in stripes, with cotton woof. This cloth was used for women's petticoats. The piece was sold for about one rupee.

(ii) *Maghaiya* – It was 10 cubits long by 1-4/7 cubits wide, valued at 12 *anas* a piece. It differed from *banusa* only in size being shorter and narrower and was used by women for a wrapper.

---

49 N. G. Mukherji, *A Monograph;* 126.

50 Mrtin Montgomery, *Eastern India*, vol. I: 352-53; Buchanan, *Patna*, vol. II: 651.

(iii) *Lungi* – It served both as wrappers and petticoats for women. It was 13 cubits long by 1-6/7 cubits wide. The whole warp was tasar and the woof was partly, tasar and partly cotton. The piece was usually sold for 13 *anas*.

(iv) *Sela* was entirely tasar. It was made of the same size as the *lungi* and both served the same purpose. The piece was sold at Rs 2-3/4.[51]

In Gaya, the important article of manufacture was the *manpuri dhuti*. It was in great demand with the Mahratta pilgrims, who purchased almost the whole of it. A piece, sold for 2-1/2 *anas*. It was 18 cubits long by 2-1/7 wide. It consisted of cotton with tasar silk borders. Gaya also made *selas*[52]

At Nawada, a cloth *dhuti* was made. It was of same nature as the *manpuri dhuti* of Gaya. However, the pieces were worth only 9 *anas* each being 8 cubits long and 2 cubits broad.[53]

Regarding the estimate of the number of looms and the number of pieces wrought, in the vicinities of Patna Montgomery Martin observed the following: - [54]

---

51 *Ibid*

52 Buchanan, *Patna-Gaya*, vol.II: 651.

53 Montgomery Martin, *Eastern India*, vol I: 353.

54 *Ibid.*

	Cocoons value	Cottons Thread	Value of Cloth	Total Profit Rs	Profit Rs.	Each A	Loom B
Fatuah	1,81,758	76,100	3,71,250	1,31,392	90	13	0
Gaya	5,625	18,750	37,500	13,325	52	8	0
Nawadah	2,016	6,912	12,960	4,032	33	9	7
	1,89,399	1,01,762	4,21,710	1,30,749			

In the Santhal Parganas in the Godda subdivision the tasar cloth weavers or the *patwas* made *dhotis, saris, gamchas,* and long continuous pieces called *than*, measuring 8 yards X 1 yard. *Dhoti,* was a waistcloth for males. They measured about 4 yards X 1 yard and were sold according to their texture, the coarse quality costing Rs. 2 per piece. They were sometimes coloured yellow and red. They were used at the time of marriage and on festive occasions. *Sari* was the chief cloth worn by the women. It measured 6 yards X 1 yard. The pieces were sold according to the fine and coarse quality. Sometimes they were made with coloured crossed borders and were used by various classes at the time of marriage. *Gamcha* was a towel, worn by children round their bodies. They were made in pieces measuring 2-1/2 yards X 1 yard.[55] Most of the cloth of Godda subdivision of Santhal Parganas was sold in local market and occasionally in the hills.[56]

---

55 N.G. Mukherji, *A Monograph:* 110.

56 L.S.S. O' Malley. *Bihar District Gazetteer, Santhal Parganas,* Calcutta, 1910: 204.

TECHNIQUE OF PRODUCTION

The process of manufacturing silk, beginning with the raw material, the cocoon, and ending in the finishing fabric. may be divided into the following stages: -

(i) The rearing of the silk cocoons.

(i) The preparation of the cocoon or winding.

(ii) Reeling and spinning.

(iii) Warping.

(iv) Weaving.

The silk craft will be considered in its five stages of production.

THE REARING OF THE SILK COCOONS.

The rearing of the tasar silk cocoons *(antheroea paphia)* was an industry of considerable importance in Singhbhum. Santhal Pargana and Hazaribagh.[57] It was also carried on in a limited area of Bhagalpur (the part east from Chandan and between Chandan

---

57 W.W. Hunter, *A Statistical Account of Hazaribagh District*. vol. XVI: (Indian reprint), New Delhi, 1973: 168

and Rajmahal hills),[58] Ranchi, Palamu, and Gaya. (in the jungle country south of Sherghati close to the Palamu border where *asan* trees were cultivated for this purpose.[59]

The rearing and collection of the silk worm was not confined to any particular caste.[60] Generally, the tribal people and low agricultural castes were involved in this work. In Hazaribagh it was undertaken by the *bhuinas, santhals, bhoktas,*[61] *ghatwals, kurmis, jolahas* and even *goalas.*[62] In Bhagalpur, the silk worm was reared by all the castes inhabiting that part and generally by the *ghatwals.*[63] In the Palamu district the rearing of tasar worms was done chiefly by the *cheros, mallahs, bhuians, dosadhs kharwar, oroan, chamars* and *ghasis.*[64] With the exception of the *cheros,* who had a certain position, the other castes belonged to the lower order of the Hindus. In Santhal Pargana the tasar cocoon were reared by

---

58 Martin Montgomery, *Eastern India*, vol.II: 157.

59 L.S.S. O' Malley, *Bengal District Gazetteer,-Gaya,* Patna, 1919; M. G. Hallette- *Ranchi.*, Patna, 1917.

60 N. G. Mukherji, *A Monograph*. For the Tribes and Castes engaged in rearing of silk worms see George Watt, *A Dictionary of Economic Products of India*, vol. 5: 110, H. H. Risley, *Tribes and Castes of Bengal,* 1891, Indian Reprint, Calcutta, 1981, vol. I and II, relevant heads; also H.H. Haines, *Working Plan for the Reserved Forests of Singhbhum of Bengal Forest Circle*, 1905: 3.

61 N. G. Mukherji, *A Monograph:* 116.

62 W. W. Hunter, *A Statistical Account of Hazaribagh District*: 169.

63 Martin Montgomery, *Eastern India*, vol I: 157.

64 N. G. Mukherji, *A Monograph*: 116, W.W. Hunter, *A Statistical Account of the Lohardaga District*, vol XVI: 349.

the *paharias, santhals, khetoris*, either on the hills or the plains.[65] In Ranchi the tribes *cheros, kharwars, munda, oraon, bhuians, chamars, dosadh, ghasies* were found employed in this work.[66] In Singhbhum most of the tribes engaged in cocoon rearing in addition to their main agricultural pursuits. The *hos, santhals, kols* were mainly employed in the work, but *dharwars, gonds, bhuiyas, gours* or *gowalas* and *kharias* also carried on the rearing.[67]

It would seem that the cocoon rearers were not engaged in the rearing of silk worm alone. They supplemented their income from other sources, chiefly agriculture and carried on other artisanal work such as basket making, Lac growing and honey collection. It is also likely that the rearers engaged in the rearing of cocoons for one year and gave it up entirely the next year.[68] Thus, their number fluctuated from season to season. It is therefore, difficult to make even an approximate estimate of the number of persons engaged in tasar rearing.

The technique, procedure and rituals associated with the rearing of silk worm were well defined. Sericulture required

---

65 N. G. Mukherji, *A Monograph*: 110, L.S.S. O' Malley, *Bengal District Gazetter, Santhal Pargana*, 1984: 204.

66 N. G. Mukherji, *A Monograph:* 116.

67 *Ibid:* 117.

68 *Ibid.*

tremendous care at certain stages, a great amount of patience and skill, which was difficult to attain without the aid of heredity.

The tasar silk is obtained from the cocoon *kao* or tasar silk insect (*antheroea paphia)* reared on the leaves of the *terminalia alatapilosa* or the *asan trees.*[69] The *asan* tree is a quick growing tree, and can be utilized for feeding purpose of the worm in the third year. However, after ten to fifteen years, the leaves appear to loose some necessary ingredient and the worm does not feed on them. The tree is never worked two successive years. After the November harvest it is pruned and allowed to regain its strength for a whole year, when new succulent leaves grow up. For this reason only half of the plantation was worked at one time.

In the wild state, the tasar worm feeds upon the *deota, sida, kokire, beei, khowa, sal, kusumb* and a few other trees. The quality of the cocoon depended not only upon the species of the trees, but also upon the soil on which the tree grew.[70] Thus, an *asan* plantation on black *kewal* or loam produced large, hard and leafy cocoon of a black colour. White *kewal* produced cocoon of a dirty white colour, inferior in size and weight to the foregoing. Wild cocoon found upon *koa* tree were much, smaller, softer and of a yellow colour.[71]

---

69 Martin Montgomery, *Eastern India,* vol. II: 157.

70 N.G. Mukherji, *A Monograph*: 116.

71 W.W. Hunter, *A Statistical Account of Lohardaga District*: 348.

One of the important features of silk production was that there was more than one harvest in a year. The harvesting and the breeding seasons varied in different districts. In Hazaribagh, the cocoons could be collected three times a year viz. in August and September; in November and December which was the most productive and in May and June which was least productive.[72] The superiority of the November silk was because silk worms would thrive best in cool conditions. In Palamu and Ranchi there were two harvests — first, which began in June and ends in August, while second began in September and ends in November. The cocoons set aside in November for seed were carefully packed in Kodo straw and stored away in some corner till the following July.[73] Bhagalpur also saw two crops extending for five months, beginning from first of July and ending about last November[74]

In the Santhal Parganas four kind of wild cocoon (*koa*) were common – (i) *sarihan* (ii) *langa* which produced less thread than *sarihan* (iii) *munga*, the best and bigger than *sarihan* and *langa* (iv) *phuka*, which was also sold to the *bairagi* caste, who made a kind of thread with them for *jalis* (nets). They were also used for the purpose of making beads.[75] In Bhagalpur the broods reared from

---

72 N. G. Mukherji; *A Monograph:* 116.

73 W.W. Hunter, *A Statistical Account of Lohardaga District*: 346; N.G. Mukherji, *A Monograph*: 116.

74 J. Byrne, *Bengal District Gazetteer, Bhagalpur,* 1911.

75 N.G. Mukherji, *A Monograph*: 110.

wild cocoon *dhaba* were considered the best, because it wound more easily and gave large quality of silk. One *kahan* was equal to 12.80 cocoon of *dhaba* and made 2 *seers* of yarns. However *dhaba* was coarse and therefore, sold cheap. The other varieties bred in Bhagalpur were *sarihan, jarhan* and *langa.* The *sarihan* wound with difficulty but the finest goods were woven out of it.[76] Three kinds of cocoon were known in the Singbhum — the *naria, bagai* and *dhaba.* The *naria* and *bagai* were obtained from the jungle parent moth, the moths laying their eggs in August. The *dhaba* cocoons were reared wholly in captivity and were ready for sale in September. The silk derived from them commanded the highest prices. The best quality of *dhaba* came exclusively from Chaibasa in Singhbhum. [77] A rare variety of cocoon found in Singhbum was *moorg* or *moonga.* Its peculiarity was that instead of being found hanging from a twig by a circular stem, as is usual, it was formed between two to three leaves. Although it goes by a distinct name, the *moonga,* in reality it belongs to one of the three classes of *naria, bagai, dhaba.* The *moonga* thread was of the same quality and quantity as the other worm.[78]

The wild cocoons were in the first instance collected from the forests by the breeders. In some parts like Palamu and Ranchi, the

---

76 Martin Montgomery, *Eastern India*, Vol: II, 157

77 N. G. Mukherji, *A Monograph:* 117

78 *Ibid:* 118.

wild, free jungle bred cocoons, were the rule. The former was larger and gave much more silk.[79] Buchanan points out that the cocoon seeds were procured from the forests by the wandering tribes. These seeds were purchased by the merchants and distributed among rearers of the worms.[80] The tribal people exchanged tasar cocoon for salt, cotton cloth, rice and other commodities. They could also be procured by the rearers directly from the forests.

The seed cocoons for breeding were placed by the rearers on a large flat basket. In Palamu the cocoons (generally 100) were placed in bags made of paddy (*kodo*) straw and kept in closed room, where they could get neither light, nor heat.[81] In Singhbhum the cultivators hung up the cocoons in sheds erected either in their houses or near the jungles till the moths formed.[82]

The cocoon ruptured to produce moths, which immediately paired. The males were of a reddish colour and the female was yellow. In Palamu they were called *phursa* and *kir* respectively.[83] Fifteen to twenty five impregnated female moths were placed in cylindrical baskets with a narrow mouth, which was covered with

---

79 *Ibid*: 116

80 Martin Montgomery, *Eastern India*, vol. II:157.

81 N.G.Mukherji, *A Monograph*: 116.

82 *Ibid*: 117.

83 *Ibid*.

leaves. Some leaves were also laid at the bottom of the basket. In the course of the day female moths deposited about 150-350 eggs on the leaves. While the female moths were thrown away, the eggs were placed in small baskets. The baskets could be made of the leaves of the *bel* tree[84] (in Bhagalpur) or *asan* leaves[85] (in Santhal Paragana, the baskets being called *thonga*) or even tufts of grass[86] (as in Ranchi). In Singhbhum the eggs were first placed in small cloth bags and then deposited to small cups of *bar* leaves on being hatched.[87] The cups were made most carefully with the object of protecting the silk worm from heat and rain. The baskets or bags were kept in the houses of the rearer till the eggs hatched into caterpillars. (called *pilu* in Santhal paragana.) In Singhbhum the eggs were rubbed with ashes, and a jungle root, called *raun*. It was believed that the strength of the *raun* determined the length of time of hatching of the worm.[88] The eggs hatched between 6-9 days. The baskets containing the caterpillars were fastened to the twigs of the *asan or sal* trees. The young worms immediately left the baskets and spread over the leaves of the trees. Before forming into cocoons the worms were shifted from one tree to another, three or four times as the worms would consume all the leaves of the tree and the trees would stand denuded of foliage.

---

84 Martin Montgomery, *Eastern India vol.* II: 159.

85 N.G. Mukherji, *A Monograph*: 110.

86 *Ibid*: 116.

87 L.S.S O' Malley, *Bengal District Gazetteer, Singhbhum, Sarai Kela, Kharsewan*, Calcutta, 1911.

88 N.G. Mukherji, *A Monograph:* 117.

The shifting of the worms from one tree to another was troublesome and a labour intensive operation. In this period of cocoon rearing the worms needed incessant watch not only to protect them from crows, other birds and pests who were apt to destroy them, but also to see that the worms did not die for want of leaves. Even a slight slackening of vigilance here would entail a heavy loss. Parties of four to nine men joined together to protect their worms. They enclosed as much of the jungle as was required for feeding the worms and during this period they lived entirely on the spot. In 36 to 40 days from the time of being hatched the worm began to spin its cocoons. "The tasar worms in spinning its cocoons takes short sweeps of its head from side to side, depositing the silk very closely in parallel fibres, which takes a zigzag course round the cocoon. It has been thought that the worm twists or spins the silk as it exudes it, but this is not the case. Besides the gum, which coats the silk, the worm secretes at intervals a cementing fluid, which it kneads by an expanding motion of its body through the whole cocoon to consolidate and harden it. This cement gives to the cocoon its drab colour."[89] In 15 days the operation was completed and cocoon were ready. During the earlier stage a little rain was beneficial to the worm, but fatal when the worm grew bigger and commenced to form its cocoon. Heavy winds also affected them by blowing the worm off the trees, they

89 Thomas Wardle, 'History and Description of the Growing Uses of Tussur Silk', *Journal of the Society of Arts*, 12 June 1891: 612.

being unable to find their way back.[90] Once the cocoons were ready all the young branches of the *asan* tree were cut and their cocoons (*koa*) were thus collected with very little trouble. In Santhal Paragana this process was called *koa kata.*[91] The cocoons at this stage were raw and of various colour, white, black yellow (*ujla, kala, pilla*). The colour did not effect the quality of the thread. The cocoons were dried on the ground for two days.[92]

The cocoon rearers generally received cash advances from *mahajans* chiefly *banias* or middlemen called *pykars*. These advances were for the purchase of seed cocoon as well as for supporting the rearers during the breeding season. When the cocoons were ready the *pykars* or other merchants, *mahajans* and *banias* immediately collected the cocoons from the rearers. After the collection the price was settled and the advances were adjusted accordingly.[93] Even when, the rearers went to nearest hats the *pykars* stepped between them and the *patwas* or silk winders. The agents of Louis, Payen and Company used to buy directly from the rearers. Hunter wrote about Hazaribagh that in Hoseir, Saran and Piltarbar, in Pargana Gola, the *jaswar banias* and the *patwas* (weavers) purchased cocoons from the rearers at Rs 5 per 17 *pans*

---

90 N.G.Mukherji, *A Monograph:* 118.

91 *Ibid:* 111.

92 *Ibid:* 110.

93 J.F. Geoghegan, *Some Account of Silk in India*, Calcutta, 1872: 111; N.G. Mukherji, *The Monograph:* 118.

(each *pan* contained 80 cocoons). The reeling of the silk could be done by men and women of all castes. The *banias* sold the silk to the *mahajans* at 7 to 9 rupees per seer. The purchasers of this silk were called *chittarpuri mahajans*, who generally came from Azamgarh.[94]

The cocoons were sold and counted by *khari*, which contained more than 1100-1200 cocoons. The prices at the hat varied according to their quality from Rs. 5 to Rs. 6 per *khari*. Soft cocoons were of little value, for it was essential for cocoons to be hard. The cocoons preserved for seed often burst and were sold for half the price only. The rearers earning after two months of hardship were, under the best circumstances, within Rs 15.[95]

The cocoon breeders generally had to pay a cess levied by the *zamindars* for the collection and growing of cocoons in the forest areas. Dalton observed in 1872 that the rearers obtained money through the sale of cocoons from which they paid their rents and "dues."[96] In Bhagalpur the rate was 5 *anas* per head, per season for cocoons.[97] In Santhal Parganas, the charge was levied either according to the number of trees farmed or 12 *anas* to 1 rupee 8

---

94 W.W. Hunter, *A Statistical Account of Hazaribagh and Lohardaga District*, vol. XVI: 169-70.

95 N.G. Mukherji; *A Monograph: 118*

96 E.T. Dalton, A *Descriptive Ethnology of Bengal* (Indian reprint), Calcutta, 1973: 211.

97 George Watt. *A Dictionary of Economic Products*, vol. V:110.

anas per patch of forest used as a feeding ground for the tasar silk worms. In Hazaribagh district, they rearers paid to the *zamindar* from 6 to 8 *anas* for this privilege.[98] In Palamu and Lohardaga the *jibanias*, as the breeders were called locally, had to pay to the owner of the *asan* tree, a royalty on branches (*khutkar*) and on twigs and leaves (*patkar*). The rent was calculated not according to the number of trees occupied but on the basis of the number of sickles (*hansua*) employed, in other word, the number of labourers.[99]

The tasar rearing industry of Bihar did not depend wholly on the indigenous loom industry of the province. The cocoons from Ranchi were exported to Purulia, Birbhum, Mirzapur, Gaya and Patna.[100] The cocoons from Palamu and Lohardaga were exported to Banares, Mirzapur and Patna.[101] The cocoons from Santhal Pargana were exported to Murshidabad.[102] Chaibasa *hat* of Singhbhum, the largest centre for cocoon-selling, was visited by weavers and *Mahajans* from Bhagalpur, Patna, Birbhum, Hazaribagh, Bankura, Burdwan, Murshidabad, Bilaspur, Sambalpur and the Southern Maratha country, all seeking their

---

98 W.W. Hunter, *A Statistical Account of Bhagalpur and Santhal Pargana*, vol. XIV: 339; *Statistical Account of Hazaribagh and Lohardaga*: vol. XVI. 169.

99 N.G. Mukherj, *A Monograph*: 117.

100 *Ibid*: 116.

101 *Ibid.* W. W. Hunter, *Statistical Account of Lohardaga District*: 349

102 *Ibid*:

stock of cocoons.[103] Approximately half the produce of cocoons in south Bihar and Bengal districts was purchased by Louis, Payen and Company, and was reeled into raw silk in their two tasar factories in the district of Murshidabad. This raw silk was then exported to France.[104]

Certain important points emerge from the foregoing discussions. First, a large number of labourers were required for constant vigilance over the worms during their rearing period. Tasar rearing was never more than a subsidiary occupation. At best a man might add to his income by cocoon rearing, but could never earn a livelihood by it. Thus the tasar rearer left his field not for his food but for "salt with his food". An affluent peasant would not take the trouble to rear tasar. On the other hand, a poor peasant could hardly afford to spend two or three months on this type of work, the income from which constantly fluctuated.[105] This operated with more force as the cultivation of commercial crops and the payment of rent in cash imposed a system of control by the landlords and moneylenders.

---

103 L.S.S O' Malley, *Bengal District Gazetteers, Singhbhum* : 153.

104 N.G. Mukherji, *Report on An Enquiry into the State of the Tasar Silk Industry in Bengal and the Central Provinces of India*, Calcutta, 1905: 3.

105 J.R. Dain, *Report on the Tasar Rearing Industry in Bihar and Orissa:* 11; H. Maxwell Lefroy, *Report on An Inquiry into the Silk Industry in India*, vol. 3, Calcutta, 1917: 181,184. Also See, Ruma Chatterjee, 'The Tasar Silk Industry and its Decline in Bengal and South Bihar; 1872-1921', *IHR*, vol. XVII, No 1-2, July 1990-Jan. 1991: 178.

Second, since the tasar worm was not amenable to domestication, there was a serious constraint on the expansion of production. Being vulnerable to attacks by birds and pests, the production of cocoons was attended with considerable risk. To potential investors in the trade, expense appeared to be high and returns uncertain.[106] Had these worms been actually domesticated, as some experts suggested, the produce would have been more costly than that of the mulberry feeding silk worms, because more tasar worms would be required to produce an equal quantity of silk.[107]

Third, trade in tasar cocoons for the exchange of other commodities or for the sake of money to pay rent in cash only imposed a system of control by the intermediaries. This cannot be substantiated by direct evidence, yet in rural markets of pre capitalist economies there were dominant parties who wielded power in setting the "form" and the "terms" of exchange.

WINDING OF SILK

The next process in the manufacturing of silk was winding, i.e. the preparation of the cocoons for extracting the silk filament from it. Winding was done in Bhagalpur, Santhal Pargana,

---

106 Ruma Chatterjee, The Tasar Silk Industry: 178.

107 *Ibid.* also *The Statistical Reporter*, January 1876: 92.

Hazaribagh and Gaya. Silk was often wound by the weavers (*or patwas*) themselves as in Santhal Parganas. The *pykars*. who had advanced money to the cocoon rearers, now purchased these cocoons and advanced them to the winders and also to the weavers who reeled the silk, employing family labour.

Buchanan gives an elaborate description of the winding of the cocoons where he emphasised that the process was mainly handled by women.[108] The silk was wound with a few primitive implements. The cocoons were boiled on cow dung fuel for two to six to eight hours, in a large earthen vessel, along with water and some alkali like *sajji mitti* or a crude carbonate of soda or potash. In Santhal Pargana the process was called *koa sejkana*.. The object of *sajji* or potash was to soften the water, enabling the quick preparation and cleaning of the cocoon.[109] At times, as in Bhagalpur, a small mat was placed at the bottom of the pot to prevent the cocoons from being burned. The cocoons were then allowed to cool sufficiently, and kept steeped for about eight hours in water. In Bhagalpur the process was more elaborate and prolonged. The cocoons were initially boiled for about an hour, then cooled and boiled again in fresh water. The water was poured off and the cocoons were put into another pot where they stood for three days in the Sun, covered with a cloth to exclude insects. On

---

108 Buchanan, *Bhagalpur:* 613.

109 N.G. Mukherji, *A Monograph:* 123.

the fourth day they were again boiled with water for less than an hour.[110]

With the procedure described above, the chrysalis (*pilu*) inside was now dead and the outer husk of the silk had been softened sufficiently to enable the spinner to manipulate it. The cocoons were next placed in baskets and cold water poured over them. The percolation of the water cleaned the cocoons.[111] The excess moisture in the cocoons was dried by spreading them in a layer of cow dung ashes and covering them with a piece of cloth for six hours. In Santhal Pargana the process was called *koa sukhana.* If they remained very wet the thread was liable to break when used. The combination of heat and moisture made the fibres loose and easy to reel.

In Patna the wage of the person who did the reeling was Rs. 1 per *seer* of thread. One *hari* or 325 *gandas* of cocoons is said to yield a *seer* of tasar thread. According to Hunter's estimate an average *kahan* of 280 cocoons (that is 5 *seers*) yielded for 1 1/2 to 2 *seers* of tasar silk.[112] This estimate was later supported by other documents.[113]

---

110 Martin Montgomery, *Eastern India,* vol. III: 272.

111 N.G. Mukherji, *A Monograph:* 123.

112 W.W. Hunter, *Statistical Account of the Santhal Parganas,* vol. XIV, 1875: 338.

113 J.R. Dain. *Report on Tasar Rearing;* H. Maxwell Lefroy, *Silk Industry in India::* 178; PC. Tallents, *Report on the Census of India, 1921.* vol. 7, Part I: Patna, 1923: 263.

The crude manner of winding and reeling of raw silk made its quality coarse. It's chief defects were unevenness of the thread within the same skein; parts of the skeins would be drawn quite indifferently from varying numbers of cocoon. "It was common to find single part double, treble and in many instances even quadruple. The mode of assortment was also much neglected....[114]

SPINNING

The Cocoons having been boiled and dried were now ready for the process of reeling and spinning. Both of these were done entirely by women in their homes, although men sometimes assisted. The reeling and spinning required an extremely delicate hand and light touch, not only for twisting the silk, but also for joining, when one or more of the filaments broke. This skill was acquired by learning to spin in early childhood itself.[115] Frequently a spinster would spin from as many as twelve cocoons. This was the maximum number of filaments used and this thicker thread was only employed when the best cloth had to be produced. Generally, she would spin from four cocoons simultaneously, a strand of silk generally consisting of a minimum of four filaments. An ordinary spinster will spin from as many as eighty or ninety cocoons in the day, producing one *kanama* or *chatak* or silk.[116]

---

114 G. F. Geoghegan, *Some Account of Silk:* 2.

115 N.G. Mukherji, *A Monograph:* 123.

116 *Ibid.*

The appliances required by the spinster were rather limited – a spindle, a reel and two mud vessels. In one of the vessels she would put as many cocoons (generally 4 or 5) as there were to be filaments in the silk thread. The other vessel was filled with water. The spindle consisted of a bamboo stick, about 10 inches long. The upper end of the spindle was cut to form a hook. To the lower end was attached a stone or earthenware disc which acted as a flying wheel. The reel was rudely fashioned by the village carpenter. It was described by Buchanan as the – "miserable conical reel". It was variously called the *latai* (Singhbhum), *natai* (Gaya), *latami* (Patna) The framework of the reel consisted of pieces of bamboo set at an equal distance from each other. The upper ends of the bamboo pieces met at a point to form a cone, with a base of slips of bamboo set diagonally. It had a long shaft or handle going lengthways through the middle. This helped in the easy turning of the reel when the thread was attached to it.[117]

The spinster would first slightly rub the cocoons in order to remove the rough coating over the shell (called tasar *phuriya* in Santhal Pargana) and to get the *khani* or tasar thread out. This process was called *koa katna* in Santhal Pargana. The outer filament of the cocoon formed a substance called *jhuri* of which potters made brushes for applying a pigment on their vessels. She would next wind off a thread called *lak*. The waste silk of Gaya (called *pheti* in Gaya) was sent to Calcutta to be worked up by more

---

117 *Ibid.*

expert weavers, as the weavers of Gaya were not skilled enough to deal with it. The spinster next wound off an inferior kind of filament also called *jhuri*. This *jhuri* was purchased by those who knitted strings out of them. Even the cocoons that had been burst by the moth were wound off. However, owing to frequent joining, this gave a weaker silk. The threads of pierced cocoons were also spun. This thread was comparatively thicker and was used as woof (*bharni*) at the time of weaving. In Patna this thread was used for making a coarse kind of tasar silk cloth called *potia*.[118]

The spinster would next draw out the filaments of tasar silk proper with her thumb and index finger and attach it to a spindle, on which it was wrapped by revolving the spindle. From the spindle the thread was afterwards attached and transferred to the reel. The spinster laid the four filaments already attached to the reel across her wetted leg and moved her left hand backwards and forwards so as to twist them into one strand, while her right hand was busy turning the *natai*, which received and winds the thread.[119] In Patna, about 1-1/4 or 1-1/2 *chataks* of thread were wound in the reel in a day. Each reel would contain thread of about 20 cocoons. It took about 18 *antis* of tasar twist (*taga*) to prepare a cloth 5 yards X 27 inches in length and width.[120]

---

118 *Ibid.*

119 *Ibid.*

120 *Ibid* : 125.

After the silk has been spun on the *natai*, it was left to dry. When it was dry and glossy, it was taken off and made into small knots of bundles (skeins) about three inches long (called *kharchi* in Gaya, *auti* in Patna). The price of thread varied from Rs. 8 to Rs. 10 per *seer* of 80 *tolas* weight. Its fineness or other wise determined the quality of the thread. The silks in the skeins were subsequently joined together in large skeins. The skeins were put once more on the *natais* (*charkhi, latai*) for purpose of setting the warp. Before warping, the weavers soaked the bundles of thread in a mixture of rice flour and water. When coloured tasar cloth was required, the thread was coloured before being wetted with the above mixture.[121]

WARPING

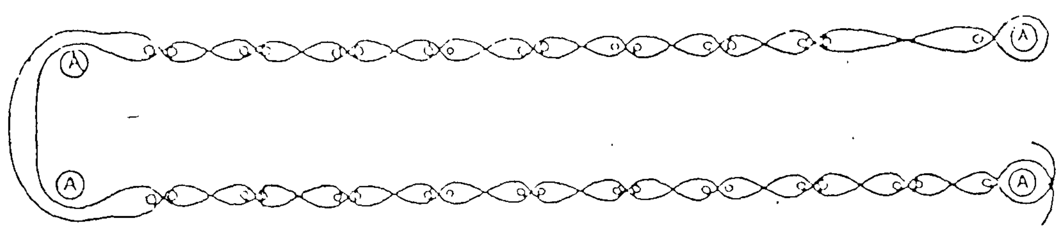
The process of setting of the warp was for all practical purposes, uniform.[122] The length of the warp varied from 10 to 100 yards long, according to the capital of the weavers. Where the length of the warp was small, slight modifications were introduced in the setting of the warp. For the larger warps, pairs of bamboo sticks or *lathis* (called *sar* in Gaya, *serai* in Patna, *mukban* or *lath* in Santhal Pargana.) were fastened in the ground at equal distances, in two parallel straight lines. The number of pairs varied according to length. At the end of each line a large post/peg was

---

121 *Ibid.*

122 The process of warping and weaving has been described by N.G. Mukerji, *A Monograph*, for Bhagalpur, Santhal Pargana, Patna: 109,112,125.

fixed, and close to each of these was a smaller post to support the bamboo sticks. The bamboo sticks were kept at convenient distances to keep the thread separate and also to help at the time of weaving flowers or checks on the cloth. Bleaching was done on the warp. In Santhal Pargana, warping was called the *naritana* process.



The operation of setting the warp (tani karab or tana karab)

A, A, A, A, are the tops of the bamboo posts (Khunti) and the dots are the tops of the smaller sticks (Sar, Sarka)

Sketch taken from George A. Grierson, *Bihar Peasant Life*, First published 1885, Delhi Reprint, 1975

As a general rule the women of the family performed the warping. They walked outside the lines holding in each hand, the reels (*natai, latai, charkhi*) on which the silk was wound. The reel revolved and paid out silk as they walked and the two lines were passed between each pair of sticks (*sar, serai*) in opposite directions. The result was that at each pair of sticks the threads interlaced. At the point of intersection the threads were kept separate, the thread of one *natai* passing from right to left, and that of the other from left to, right.

The process was somewhat different when the wrap to be set was smaller. In this case there were also two parallels lines with two stout posts, about 2 feet high, but at one end there was another post standing a foot or so beyond the lines and at an equal distance from each. Thus, on a length of twenty to thirty feet, there would be four 'sticks' altogether in each parallel line, but these were of different character, as they were not sticks or posts fastened in the ground; the two middle sticks consisted in each case of a solid base of dried *mitti* (clay) broad enough at the bottom to stand firmly. In this there were four bamboo splints about 2-1/2 feet high; the two sticks which flanked those on either side had only two splints of bamboo fastened in this base.

The reel used for a smaller warp was also different. It was long and straight consisting of two parts, one the iron axle, *kunda* about 1-1/2 feet long, which was held in the hand and the other wooden reel, about 6 inches long, on which the silk was wound and which revolved and paid out the silk. In this case the woman walked up and down, on one side of and round, the posts. In this case also she had two reels, which she passed in and out of two of the bamboo splints of the central *sars*, and through those of their next. In each case, the crossing of the thread helped to keep them distinct and separated. When all the thread has been set upon these *sars*, the thread on the post at the end of the two lines was cut and the thread removed. It was then made up into a high hank called *lunrhi*, and afterwards set upon the loom.

The silk was naturally so smooth and glossy that it precluded any necessity of smoothing and brushing out irregularities. However, before transferring the warp to the loom, it was stretched and spread horizontally at the height of 3-1/2 feet from the ground. The upper and lower sets of thread were quite distinct and separate. They only interlaced at each end and where there were three bamboos at the crossing of the threads, except at the ends, the threads lay smoothly and evenly.

The warp was suspended in mid-air by means of the support of a trestle shaped stand (called *dogra* in Gaya). The end bamboo keeping the threads crossed was called *danrhi*, the next two *cheurh* the stand itself was secured by a rope, fastened to a peg in the ground which was tight enough a keep the wrap straight and firm till it was transferred to the loom.

WEAVING

The loom used as well as its working was similar to the cotton cloth. The loom itself was worked single handedly by one weaver. He sat with the loom before him and with his legs in a small pit. In the pits were placed the treadles (*paunri*) with which he worked the loom. Adult males alone did silk weaving. The assistance of women and children remained confined to preparing the thread and fixing the warp. The method of weaving was as follows :-[123]

---

123 N.G. Mukherji, *A Monograph* : 124-125.

In front of the weaver stretched the warp with its upper and lower layers of threads; separated between them he would slide his shuttle *kaparbinni.* The shuttle was a canoe-shaped iron instrument hollowed to contain the needle (*tiri*) on which the silk thread was wound and on which the tube (*chuchchi*) revolved, the whole being called *nari.* The latter was kept in its place by a small peg made of a big sort of feather (*pakhnari*), and paid out thread as it revolved inside the shuttle, which was pushed into and would slide between the two sets of threads.

When it had passed through, the *patwa* pulled forward a wooden frame (*hatha*) suspended from a bamboo bar above his head. This *hatha* consisted of three parts: (i) the upper, a heavy bar, (ii) the lower, a light bit of bamboo, (iii) while between them was a comb of fine reeds. The reed was a sort of comb consisting of teeth (called '*sana* in Santhal Pargana). In Santhal Parganah, the teeth were made out of the outer common *sar* grass usually found on the *dearah* land. The teeth were just far enough to admit the passage of the thread. The interval between the teeth varied according to the quality of the cloth. They also differed in fineness as well as in length. The reed used in Santhal Parganas contained 732 teeth, and was 3 feet 9 inches in length. The teeth were about 3 inches in length. They cost 4 *anas* each. The teeth were made by the *rusbania* or *odna godna* caste (a muhammadan sect) in the district of Gaya. Each of warp was set between two of these reeds, and separated thereby from the next.

This reed or *sana* (as it is called in Santhal Pargana and Gaya, besides a variant word *rachh* hung from and upper bamboo (*parkha*) from which the *nachni* was also suspended.

At the same time the *patwa* worked his treadles with the feet. The result of this was to move the healds (*bai*) and thereby alternately raise and depress each set of threads of the warp. They were connected with the *nachni* a small lever about 6 inches long. The *nachni* was so called because its movements, which corresponded to the working of the treadles, suggested the motions of dancing.

Behind these treadles were two seers of reeds (*ban*) separating the two sets of thread, and the intersection of the threads not yet worked upon the weaver was still preserved.

The *patwa* was not only busy with the weaving of fresh cloth, but he was obliged, at the same time, to secure the web already woven. He did this by means of two elastic bows, consisting of two arches (*kanti*) connected by strings. These strings were pushed along the bow to tighten it. By this means the weaver regulated their tension and adjusted their lengths exactly to the width of the cloth. At the end of each arm was a pin, which was fastened at either side of the cloth and kept in their places.

The cloth itself was fastened to a roller immediately in front of the weaver (*chanpal*), which was also used for winding up the

cloth when woven. This was supported by two short posts about ½ feet high (*khunta*). It rested upon the left hand post (*banwaria*) and passed though the right hand post, which was shaped like a tongue and was consequently called *jibhela*. The portion of the warp, which had still to be woven, was tied up by a piece of wood (*dansa*) which was itself supported by pillars, or wooden posts. There was no loose end to it but it would end off just as the cloth would when woven. It was kept tight by a string, which was brought back close to the weaver's left hand, and which enabled him to tighten or relax the warp as necessary. The means of ornamentation of the cloth could be readily supplied. By charging the shuttle with the different coloured threads, and bars of different colours could be introduced into the plain background of the silk. This was the method also in which the *bafta* (mixed tasar and cotton) was introduced. The warp was composed entirely of silk and the shuttle introduced the woof of *sut* (cotton).

Tasar cloth was often dyed and aniline dyes were used. Since the silk was uneven and full of knots, the cloth woven was of a rough quality. This phenomenon contributed to the difficulty in dyeing and blacking tasar silks.[124]

---

[124] E.W.Collin, *Arts and Industries of Bengal*: Para 32; L.S.S.O' Malley, *Bengal District Gazetteer*, Santhal Parganas, Calcutta, 1910: 204.

CHAPTER V

DYEING WITH SPECIAL REFERENCE TO INDIGO

During the seventeenth - eighteenth centuries, Bihar produced a wide variety of colours and shades on almost all the types of fibres e.g. cotton, silk and wool. A large number of dyes, mordents and auxiliaries were used for dyeing. The techniques used were mostly simple, and could differ slightly from dyer to dyer or according to the nature of fibre to be dyed.

The substances used in dyeing and printing include fruits, flowers, leaves, roots, seed, bark and galls of plants and also insects and earth.[1] The indigenous dyes chiefly used were the flowers of the *kusam* or safflower (*carthamus tinctorius*); the flowers of the *singahar* (*nyctanthes arbortrists*) and of the *tun* (*cedrela toona*); the leaves of *indigofera tinctoria* or *nil-indigo*; *tairi*, the pods of *caesal pinia sappan* wood; *bakam*, the wood of the same tree; *kath* (*catechu or terra japonica*), obtained from *acacia catechu*; the root of the *haldi* or turmeric (*curcuma zerumbet*); the seeds of *bixaorellana*; the fruit of the *karanja* or *galedupa indica*; the bark of the *am* or mango (*magnifera indica*); the flower of *palas*, (*butea frondosa*); the root of *manjit* or

---

1 N.N. Banerjee, A Monograph on Dyes & Dyeing in Bengal, '*Art in Industry Through the Ages*', Monograph series on Bengal, New Delhi, 1976: 197.

Indian madder (*rubia munjista*); *singrif* or vermilion *zangar* or *verdigris*; *sajimati* an impure carbonate of Soda, and *kassis* white and powdery sulphate of iron.[2]

As most of the dyes were fugitive by nature, agents had to be used in order to fix their pigments on the fibres of cloth. These fixing agents were called mordents. "The mordant", wrote Forbes, "is usually a soluble salt of aluminum, chromium, iron or tin precipitated on the fibres along with the dyes by an alkali. Mordant and the dye then form a lake which adheres strongly to the fibres and gives a fast colour"[3]. Several ingredients were used as mordents in the dyeing industry e.g. alum, iron compounds, common salt, *sajji,* (Crude nitric), lime, lemon juice, green dried mangoes, myrobalans, flower of *kapas*. Mordanting effect of each varied and each one influenced the final colour obtained. In some dyes alum produced yellow colour, in others it yielded an orange hue.[4]

---

2 W.W. Hunter, *Statistical Account of Bhagalpur: 1911:* 182; J. Byrne, *Bengal District Gazetteers, Bhagalpur,* Calcutta, 1911:127

3 R.J. Forbes, *Studies in Ancient Technology,* vol. IV: 132.

4 H.C. Bhardwaj, K.K. Jain, 'Indian Dyes and Dyeing Industry during 18th-19th century', *History of Science and Technology in India:* 58; T.Wardle, *Monograph on the Tusser and other wild Silks of India and on Dyestuffs of India,'* London, 1878: 158.

The dyeing industry of Bihar was concentrated in Bhagalpur and Patna divisions. Buchanan reported that there were 552 dyers or *rangrez* in the district of Patna-Gaya, of which 156 were in the Patna City, 40 in Gaya, 100 in Daudnagar.[5] Bhagalpur had 94 dyers or *rangrez*.[6]

The dyeing industry was marked by an intense specialization, with dyers working with one colour alone. The dyers of Patna were divided into four kinds (i) the *rungrez*, or *rangreji* dyed various colours (ii) *nilgur* dyed with indigo alone, (iii) the *achfurosh*, dyed with the root of the *morinda* alone, (iv) and the *golalsaz* dyed with lac alone.[7] Some *rungrez* used both indigo and *morinda*. The procedures required for mordant and resist dyeing involved the existence of separate groups of artisans who specialized in the washing and preparation of the cloth, the painting, printing of iron and aluminum mordents, the resist dyeing in indigo, and the bleaching of background material where necessary.[8]

---

5 F. Buchanan, *Patna-Gaya*, vol. II: (Appendix), 770.

6 Martin Montgomery, *Eastern India*, vol. II: (Appendix), 9

7 Martin Montgomery, *Eastern India*, vol. I: 351; F. Buchanan, *Patna-Gaya*, vol. II: 649.

8 Lotika Varadarajan, 'Impact of European Traders on Indian Handicrafts and Industries': 215.

The designation of the dyers differed according to the districts in which they worked and according to the branch of the dyeing industry in which they engaged. While those who dyed cloth were called *rangrez*, those who dyed silk were *patuns*, the lac dyers were known as *laheres*, and the dyers of wooden plates and boxes were known as *kamangars*.[9]

Buchanan reported that the *rungrez* of Bihar district made good wages. At Gaya, a dyer family of two adults, and eight persons in all, earned Rs 120 a year. The indigo dyers were paid by the weight. They dyed 5 *sers* of cotton thread for a rupee.[10]

The dyers of Bhagalpur were chiefly employed to dye the clothes of those who attended marriage parties. During the three months that the marriage ceremonies lasted, the dyers made very high wages. However, at other times they had little employment.[11]

In Bihar, the principal dyers were the Muslims, who as a rule belonged to the *shiekh* Caste. The *sheikh* dyers had their own restriction with regard to marriage, but in other respects they mixed freely and equally with all *shiekhs*. The Muslim dyers, were mostly

---

9 N.N. Banerjee, 'A Monograph on Dyes and Dyeing': 194

10 F. Buchanan, *Patna-Gaya*, vol. II: 649.

11 Martin Montgomery, *Eastern India*, vol. II: 268.

engaged in dyeing cotton, silk cloth and thread.[12] The principal dyers among the Hindus were the *tantis* who belonged to the weaver caste and confined dyeing to cloth and thread[13]. Other castes who were not professional dyers but, who engaged in dyeing were-*kumars* (potters), colouring the earthen pots manufactured by them; the *kamars* and *barahais* (carpenters) who dyed and enameled, their wooden wares, *kandu*, *dhobi*, *tatwa*, *mali* dyed with the *al* dye in Patna. *dhobis* were generally calico printers. The *paurs* in Lohardaga corresponding to the *tantis* of Lower Bengal would dye their own yarn before weaving cloth. Like the *tantis* they held a low place in Hindu society. Santhals were also reported to engage in dyeing cloth and yarn in Bhagalpur, and Santhal Parganah. *Domes* too, belonging to the lowest caste of the Hindus generally, dyed articles made of split bamboo or cane. *Chamars* dyed leather goods.[14]

Generally males did professional dyeing. Women would also dye, but they did so for their own houses, and did not work in shops[15].

---

12 N.N. Banerjee, 'A Monograph on Dyes and Dyeing': 194.

13 *Ibid*: 194-195

14 *Ibid*: 195

15 *Ibid*.

The dyer required very few and inexpensive implements for performing his job: a copper vessel to boil the infusion, an earthen vat, (*mat, mant, kunr, goli*) a wooden stick to stir the boiling infusion or cloth, a wooden club to beat the cloth into smoothness, some old muslin to strain off the solution, and an ordinary pestle and mortar of stone used for pounding dye stuffs know as *lohra-silant* in Bihar[16].

The process of dyeing, however, was rather tedious. It consisted of preparing the solution according to the prescribed proportions. This was done by means of pounding the ingredients and boiling them, dipping and boiling the cloth in the decoction, rinsing, drying either in the sun, shade or partly in both, rubbing the surface with the hand, and the finally, beating the cloth to smoothness[17].

The process and technique of dyeing in Bihar is illustrated by citing a few instances of dyeing some of the shades. The dyers of Bhagalpur chiefly used safflower or *kusum*, (*carthamus tinctorious*) which was in great demand on account of the compound colours it produced[18]. *kusum* or safflower was also cultivated to a considerable extent in the Bihar district. Buchanan reports that 1,500 *bighas* were

16 *Ibid:* 224

17 Liotard, *Memorandum on Dyes of Indian Growth, Calcutta, 1881: 97.*

18 Martin Montgomery, *Eastern India,* vol. II: 268

sown with safflower alone and a great deal was scattered through other crops, especially in rows round poppies and vegetables[19].

Safflower, gave two principal and different colours - *sorukh* or *kusami*, a bright pomegranate red and, *golabi*, a pale, but fine, red like the rose. F. Buchanan gives an account of the process of dyeing cotton with safflower, which was practiced at Monghyr in 1811[20]. In order to dye the pomegranate red, for three turbans measuring 40 cubits long by 1 cubits wide, the ingredients required were 3 *sers* of flowers, 6 *chhataks* of impure carbonate of soda (*saji*),[21] 1 *chhatak* of turmeric, any vegetable acid or lime juice, mango or tamarind. Wood ashes and ashes of burnt plantain rinds, and pods of palm flowers, are in some cases substituted for *sajimati*. The flowers were washed on a cloth strainer with six pots of water, each pot containing about 15 *sers* of water, until the water came off clear. This coloured water was called *pili* and was used in dying green when mixed with turmeric and indigo. The same flowers were washed after an hour with another six pots of water. The water was called *dhol* and was of no use. The water was squeezed from the flowers, soda was added to the flowers and the two rubbed together. This was placed on the strainer with 1 or 1 ¼ pot of water. The coloured water thus derived was called

---

19 *Ibid.*

20 *Ibid.* W.W. Hunter, *Statistical Account of Monghyr:* 141.

21 N.N. Banerjee, 'A Monograph on Dyes and Dyeing' : 201

sahab, which was the proper dye. In this dye, the three turbans were dipped and kneaded. The cloth was again soaked with turmeric and acid and then wrung and dried in the shade. The same operation was repeated with fresh flowers on the two following days. If a lighter colour was wanted, then more water was added to the *sahab*. If an inferior and cheap colour was wanted, the cloth was dipped only once or twice instead of thrice[22].

Having extracted the *sahab'* colour the dyer could obtain the best *golabi* or rose colour by adding the same safflowers to another pot of water. This could extract a colour called *pachuya*. The cloth was first dipped in the dye alone and then dipped again after adding acid and dried in the Sun. A paler rose colour was given taking ¼ ser of *sahab* colour, adding 5 *sers* of water and using this as dye.[23]

The dyeing of three turbans of a bright pomegranate red brought the dyer Rs. 4 and 8 *anas* and the four turbans of a rose colour brought 8 *anas*-a total of Rs. 5. The cost of the ingredients was 3 rupees 6 & ¾.[24]

---

22 Martin Montgomery, *Eastern India*, vol. II: 268-69

23 *Ibid*: 269

24 *Ibid*.

narangi or orange colour and *zurd* or yellow was derived either with the flowers of the *singgarhra* or the *tungd.* The trees which bear the *singgarha* flowers were not generally planted but grew wild in gardens. They were found in abundance in the hilly jungle of Sherghati in the district of Gaya.[25] Both the *singgarhra* or *tungd* were nearly of the same quality, and used in the same manner. But the quantity of each differed for dyeing i.e. each turban required only four *chhataks* of the *singgarhra* and six *chataks* of the *tungd.*

The process of obtaining *narangi* (orange) dye was as follows: 2 *sers* of *singgarhra* or *tungd* flowers were boiled in 3 *sers* of water. When cooled, 1 & ½ *sers* of the *sahab* colour (prepared as described above from safflower) and 1 *ser* of water were added. In this, the cloth was dipped, wrung, and some vegetable acid was added. The turban was soaked in this mixture for 24 minutes, then wrung and dried in the shade. This made an orange of different shades, according to the quantity of cold water added. The dyer earned four *anas* for dyeing each turban[26].

Zurd or yellow colour was derived in the same manner, as the orange colour except that no *sahab* was added and that in place of acid, 1 *chhatak* of alum was employed. 3 *sers* of flowers were boiled

---

25 N.N. Banerjee, 'A Monograph on Dyes and Dyeing: 202

26 Martin Montgomery, *Eastern India,* vol. II: 269

with 4 *sers* of water. If a light yellow was wanted then a little cold water was added to the dye when cool[27].

While most of the dyers of Bhagalpur dyed colours like *sorukh kusami*, *golabi*, *narangi* and *zurd*, about 12 houses of dyers were constantly employed in dyeing the mixed cloth made of cotton and tasar silk called *baftah* that was woven in the vicinity of Bhagalpur. Buchanan gives an account of the various dyeing processes from which ten colours were derived.[28]

(i) *Kakerja*: a dark brown inclining to purple, and blood red. This was obtained by infusing *tairi* (pods of *caesal sappan pinia*) in 5 *sers* of water for two hours. The wood of *sappan* or *caesal pinia* was pale when fresh. However on exposure to air it turned reddish which yielded red colour. When compounded with acid and alkali, the wood imparted yellow and violet colours. The greater part of the water was strained off, and the cloth soaked in the remaining dye. This was followed by the use of a mordant - *kassis* (a sulphate of iron which becomes white and powdery by exposure to air) was dissolved in 10 lbs. of water, and the cloth was put into the mixture for a few minutes, after which it was dried in the Sun. Other mordents were also used. Next 1 ¼ *oz.* of alum was dissolved in a little hot water, added to a 10 lbs of cold water, and in this the cloth was thoroughly soaked. Next 5 & ½ *oz.* of *sappan* wood was boiled in 15 *sers* of water for 6 hours. The decoction was cooled and the cloth

---

27 *Ibid.*

28 W.W. Hunter, *Statistical Account of Bhagalpur District:* 182-83; J.Byrne, *Bengal District Gazetteer, Bhagalpur:* 127-129.

soaked in it for 6 hours. The cloth would be wrung and again put into the same colour solution to which 2 ½ *oz.* of lime was added. The cloth was finally wrung and dried in the shade.

(ii) *Agari*: Brown without any tinge of purple, was produced by bruised *tairi* infused in 10 lbs of water for about an hour and a half. In this infusion the cloth was soaked, wrung and dried in the sun. The cloth was again rubbed for six hours in a solution of *kusis* dissolved in 5 *sers* of water. Then 18 & ¾ s.w. of *terra japonica* (*kath*) was infused in 5 *sers* of cold water and a little lime water was stirred into the infusion. The cloth was dipped into the infusion, wrung and dried in the sun.

(iii) *Uda:* a bright purplish brown was derived from a weaker solution of *tairi* than is required for the above mentioned colour *agari* (i.e. 25 s.w. of *tairi* in 5 *sers* of water) and was similarly fixed by the mordant, *kassis* (6 & ¼ s.w. of *kusis*). Afterwards the cloth was soaked in the solution of alum, such as was first used in obtaining *kakreja*. It was next soaked for half an hour or 1 *ghari* in a decoction of 50 s.w. of *sappan* wood, boiled for 15 *ghari* (7 & ½ hours) in 20 *sers* of water, which would be reduced to 14 *sers*. A little limewater was added to a part of the decoction and the cloth put into it.

(iv) *Baigani*: a shade lighter than above, approaching to claret colour was produced in the same manner as the *uda*, except that the decoction of *sappan* was less strong.

(v) *Habasi*: a blood red was produced by much the same treatment as the above, but alum was freely used, and the *sappan* infusion was prepared in the same manner as in the case of *uda*.

(vi) *Shotari*: a light brownish drab colour was obtained from 12 & ½ s.w. of *terra japonica* infused for a whole day in 1 & ½ *ser* water. The next day the infusion was diluted and the cloth was soaked in it. The mordant was *kusis* - 6 & ¼ s.w. of *kusis* in 5 *sers* of water.

(vii) *Taronji* : a bright gamboge yellow, was obtained by infusing 12 & ½ s.w. or *5oz.* of turmeric in 10 lbs or 5 *sers* of cold water. The infusion was strained and the cloth soaked in it. The colour was fixed by a solution 6 & ¼ s.w. of *alum*, 5 *sers* of water, to which 50 s.w. of sour curdled milk has been added. The cloth was then dried in the shade.

(viii) *Asmani*: a light sky blue made from 1 & ¼ *oz.* of native indigo infused in 5 *sers* of water, to which 3 & 1/8 s.w. of alum and 25 s.w. of milk had been added. The cloth was rubbed in the mixture, wrung and dried in the Sun.

(ix) *Faktah*: a bluish ash colour was prepared by putting the cloth in an infusion of 50 s.w. of *tairi* in 5 *sers* of water and next in a solution of 6 & ¼ s.w. of *kassis* dissolved (in a similar quantity of water) in 5 *sers* of water. The cloth was then seeped in an infusion of 6 & ¼ s.w. of powdered *kachur* root in 5 *sers* of water and dried in the Sun.

(x) *Shishaha* : a pale blue, somewhat resembling the colour of lead, the process was the same as in producing *fakhta*, except that the cloth after being taken from the infusion of *kanchur* was put into an infusion of 5 *oz.* of native indigo in 10 *lbs* of water, it may so be made by omitting the *kanchur* infusion.

In the whole of these processes the dyers used well water, most of the water near Bhagalpur being hard.[29]

Buchanan gives a report on the manner in which the 'global' dye was extracted from lac in Bihar district.[30] Lac (*lah*) was really a resinous incrustation of a deep orange colour formed in the bark of trees mostly wild, by the larvae of the lac insects, known as *coccus lacca*.[31] The best lac is said to be produced on the *palas (butea frondosa)*, *kusum* tree (*schleichera trijuga*), *pipal* (*ficus Religiosa*) and *baer* (*zizy phus jujuba*) The resinuous incrustation it its natural shape is known as Stick-lac. The principal chemical component is sixty to seventy percent resin and ten percent of a dark red colouring matter which occupies each of the small cells of the incrustation, and is itself a portion of the body of the female insect. From the resin is manufactured the shell lac and from the colouring matter the lac dye of commerce. The lac is taken off the trees in March and October by pounding, so that the resin is separated from the twigs.[32] Lac occurred in the Bihar province in plentiful supply. However owing to

---

29 Martin Montgomery, *Eastern India*, vol. II: 351.

30 F. Buchanan, *Patna-Gaya*, vol. II: 650; Martin Montgomery, *Eastern India*, vol. I: 352.

31 H. Coupland, *Bengal District-Gazetteers* - Manbhum, Calcutta 1911; O'Conor, *Note on Lac*, Calcutta; 1874; N.N. Banerjee, 'A Monograph on Dyes and Dyeing': 198.

32 N.N. Banerjee, 'Monograph on Dyes and Dyeing': 198-199

its cost it was usually employed exclusively for silk especially tasar and seldom for calicoes.[33] The best kind of prepared dye was shell lac and used to be exported[34] the inferior kind called stick-lac was utilized within the country, for painting cheap trinkets, varnishing and dyeing leather.[35]

The best kind of Global dye was made by beating 40 *sers* of stick lac in a mortar, and putting it into 36 *sers* of water for three quarters of an hour.[36] To enable the separation of the dye from the resin, an alkali or *sajimati* was mixed with the resinous powder[37]. The lac and water, was treaded with feet or beaten with a wooden pestle and the water or infusion was poured off. The lac was then put into an equal quantity of water and treated in the same manner, and this was repeated a third and fourth time. The whole infusion was then boiled to two third. To this was added 20 *sers* of sour curdled milk. The whole was then put gradually into a cotton cloth bag and strained.[38] Limewater could also be added to help the

---

33 F. Buchanan, *Patna-Gaya*, vol. II: 649; Martin Montgomery, *Eastern India*, vol. I: 352.

34 *Ibid.*

35 O' Conor, *Note on Lac*: 26,28.

36 F. Buchanan, *Patna-Gaya*, vol. II 649:

37 N.N. Banerjee, 'A Monograph on Dyes and Dyeing': 199

38 F. Buchanan, *Patna-Gaya*, vol. II: 649; Martin Montgomery, *Eastern India*, vol. I: 352

precipitation of the sediments[39]. This took two days, after which the bag and what remained in it, were squeezed with a heavy weight and made into a lump about the size of filbert which amounted 1 & ¼ *ser*. The lac was then melted and cast into little cakes. The *golalsaz* earned 1 rupee as profit after cutting the cost of fire woods, and various materials. For the *golal* of an inferior quality usually sent to Calcutta, 5 *sers* of *tikhur* or starch, was added along with the milk, and 6 *sers* of *glolal* was procured with Rs. 5 & ½. The best, in fact was only made when required for dyeing silk on the spot.[40]

INDIGO

The importance and potential of indigo production in the growth of the textile industry in the 17th century has been recognized. Indigo "on treatment with water gives a wondrous blend of purple and blue".[41] G. Watt declared that all attempts to find a suitable substitute have failed, it being especially valuable as a tinctorial reagent.[42] As a dyestuff indigo had many advantages over woad, which was traditionally used in Europe for making a blue colouring. It was relatively fast, and cheap to use. An eighteenth century French

---

39 N.N. Banerjee, 'A Monograph on Dyes and Dyeing': 199

40 F. Buchanan, *Patna-Gaya*, vol. II: 649; Martin Montgomery, *Eastern India*, vol. I: 352

41 Forbes, *Studies in Ancient Technology*, vol. IV: 110-11.

42 G. Watt. *Pamphlet on Indigo*: 11.

dye expert estimated that one vat of indigo dyed as much material as two vats of woad.[43]

According to Jadunath Sarkar, there is no information on indigo being grown in Bihar. He refers to the silence of the *Ain-i-Akbari*, the *Khulasat ut-Tawarikh* and the *Chahar Gulshan* on indigo cultivation.[44] However, according to Irfan Habib, indigo was listed in the *dasturs* of all the *zabti* provinces in the *Ain-i-Akbari*.[45] While Tavernier refers to indigo being grown in Bengal and largely exported therefrom[46], Mundy refers to indigo in Bihar[47]. Mundy says that indigo was available at Patna though better quality of it was available elsewhere "for any other of this countries commodities, as raw silk, indigo, gumlack (lakh, lac), saltpetre", one can have much better and cheaper elsewhere[48]. It appears that though indigo was being cultivated, its production, in Bihar during the sixteenth and

---

43 M. Hellot, *The Art of Dyeing Wool and Woolen Stuffs,* Dublin, 1767: 37-38

44 Jadu Nath Sarkar, *History of Aurangzeb,* vol. I, Part II

45 Irfan Habib *Agrarian System of Mughal India.*: 42n

46 Tavernier, *Travels in India,* vol. II: 8.

47 Peter Mundy, *Travels,* vol. II: 151, 153.

48 *Ibid:* 156.

seventeenth centuries, if at all, was on a very small scale. It was largely exported from Bengal[49]

Indigo dye is obtained from the leaves of the plant *indigofera tinctoria*. The production of indigo, as an important commercial crop, in Bihar, dated from the middle of the 18th century[50]. The great demand for indigo in the foreign market, the high prices which the commodity fetched and comparatively inexpensive methods of manufacture, attracted European enterprise into this plantation industry. Cornwallis observed in his Minute of 1st November 1788 "Indigo which is but recently exported from Bengal as an article of foreign commerce absolutely creates a new source of wealth to it. It affords the happy means of employing the waste lands of the country, improving the revenue and repairing loss of other branches of trade, the great importance of encouraging it is, therefore, evident"[51]. On 25th June 1793, the Company's Government in Calcutta issued a notice to the effect that the Board of Trade will for the Company's investment purchase readymade indigo which may be tendered for sale in bulk at the Export Warehouse of quality such as they shall approve, and at such price as may be settled with the profferer. Any

49 N.K. Sinha, *Economic History of Bengal*, vol. I: 206.

50 J.C. Sinha, *Economic Annals of Bengal:* 177; N.P. Singh, 'The Indigo Industry of Bihar and the Oppression of the Ryots 1833-1858', *POIHC*, 1981: 503.

51 *Board of Trade (Indigo) Proceedings*, December, 1811

quantity will be taken provided it in not less than five factory *maunds*. Persons desirous of tendering must specify by letter to the Board of Trade the quality, the means to tender and the time it will be ready to be sent to the Export Warehouse[52]. Some initial difficulties of the Indigo planters were removed through the assistance of the Company particularly in the form of loan and their efforts proved immediately successful.[53] Milburn wrote in 1813, the article of indigo bears a distinguished rank in the list of Asiatic produce, and may be considered the staple commodity of the private trade from India.[54]

Indigo manufacture remained confined almost entirely to North-Gangetic Bihar. In North Bihar the manufacture of indigo, according to European methods, was pioneered by George Francois Grand, the first Collector of Tirhut. He claimed in 1785 "I introduced the manufacturing of indigo after the European manner, encouraged the establishment of indigo works and plantation, and erected three at my own expense".[55] Between 1782 and 1785 George Francois erected three factories (near Muzaffarpur) at Daudnagar, Dholi and Saraiya.[56]

---

52 *Calendar of Persian Correspondence*, vol. X: 302

53 *Papers Relating to East India Affairs*, 1813: 1-4

54 Milburn, *Oriental Commerce*, vol. II: 214.

55 Letter from Collector of Tirhut, dt. 27 Oct. 1794, to the Board of Revenue, *Muzaffarpur Collectorate Records*.

56 *Ibid.*

His example was followed by a number of European adventurers, many of whom were in fact deserters from European ships.[57] In 1788 there were four Europeans in possession of indigo works in the *pargana* of Sarassa in Tirhut and one at Muzaffarpur. Among them one was Mr. Peter de Rozario, a native Portuguese.[58] In 1793 the number of factories had increased to nine. By the end of the eighteenth century eighteen indigo factories owned by Europeans of different nationalities like German, Italian, Irish, Scottish, Portuguese and English had been established in Tirhut.[59] These factories were mainly scattered in different parts of Tirhut such as Muzaffarpur, Dulsingh Sarai, Motespur, Jitwarpur, Tiwara, Kamtaul, Daulatpur, Deoria, Sighea.[60] By 1810 the number of factories in Tirhut had risen to twenty-five, which produced about 10,000 *maunds* of indigo per year, which was sent to Calcutta for export to Europe.[61]

---

57 S.H. Askari, Q Ahmad, *C.H.O.B.* vol. III, part 1: 461.

58 Letter from Collector of Tirhut dt. 4th Feb. 1788, to Secretary to Government, *Muzaffarpur Collectorate Records*

59 Letter from Board of Revenue, September 1801, *Tirhut Collectorate Records;* Also, Letter from the Collector of Tirhut dt. 11th January, 1803, to Secretary to Government, *Muzaffarpur Collectorate Records.*

60 Letter from Collector of Tirhut to Messers Finch and Culloden, Indigo Planters at Shahpur Bondy, *Muzaffarpur Collectorate Records.*

61 Letter from Collector of Tirhut Mr. D. Burgess to the Revenue Board, Member, Mr. B. Crisp. 18 October, 1810, *Muzaffarpur Collectorate Records.*

Tirhut produced the best quality of Indigo, which was much prized in the European market. Roughly speaking, about 30,000 to 50,000 people received their principal support from the indigo factories of Tirhut. On average each factory disbursed from Rs. 25,000 to Rs. 30,000 per annum in hard cash "to the labourers, ryots and cultivators for some miles around their factories". In this way the enterprising European Indigo planters circulated a sum of six or seven lakhs of rupees every year in Tirhut.[62] In 1810, the Collector of Tirhut urged that the advantages of the industry to the labouring classes were so great that the government should encourage it in every possible way. The Collector observed "let the speculators win or lose, or acquire a princely fortune or die a pauper, the district is equally benefited by his industry, and his struggle for prosperity". In some of the various occupations whole families of men, women and children with their cattle, ploughs and carts were occasionally employed".[63]

Besides the Tirhut Range, indigo factories in Bihar were also established on a wide scale in Purnea and Bhagalpur and to a limited extent in Patna, Behar and Shahabad districts. The first mention of indigo manufacture in Purnea, as far as can be traced, occurs in a letter, dated 16th January 1788, from the Collector to the Board of

---

62 *Ibid.*

63 *Ibid.*

Revenue. In this letter, the Collector mentions a Mr. Coustard "a quiet, industrious man, proprietor of small indigo manufacture", amongst some non-official Europeans resident in the district[64]. Indigo was probably, however, a well known crop before that time, for in the following year (1789) the Collector made a detailed report on the manner of its cultivation.[65]

It appears that the first indigo factory was built, in Purnea[66]. This probably about 1775, at Nlganj, a few miles south of the town of Purnea.[67] The vats were then made of wood, and the boilers of copper[68]. The wooden vats were said to have made better indigo. The new industry seems to have attracted a great deal of attention amongst the people and pieces of the plant are said to have been circulated amongst the village headman as curiosities[69]. The Kolasi factory in *pargana* Katiyar was erected a few years afterwards. Thus the cultivation seems at first to have progressed southwards, towards

---

64 W.W. Hunter, *Statistical Account of Purnea: 360*

65 L.S.S. O'Malley, *Bengal District Gazetteers,* Purnea, Calcutta, 1911:126

66 Minden Wilson, *History of Bihar:* 69-72; Watt, *A Dictionary of Economic Products of India*, vol. IV: 39; W. Carey, *The Good Old Days of the Honourable John Company,* vol. II: 339-40; Malley, *Bengal District Gazetteer, Purnea*: 126.

67 W.W. Hunter, *Statistical Account of Purnea: 360*

68 *Ibid.*

69 *Ibid.*

the Ganges *diaras*, in the low lands subject to annual inundation from the Ganges.[70] Indigo operations were next extended to the Northern *pargana* of Nathpur (now in Araria district). One Mr. Smith took a lease of the whole *pargana* of Nathpur from the Government and erected factories there. Later on he started operations in the South and between 1800-07 held four large factories in Gondwara *pargana*. In total there were 10 factories in Gondwara containing 21 pair of vats.[71]

At the time of Buchanan survey in 1810, the whole of the district of Purnea was studded with no less than 75 indigo factories. Seven factories were held by two Hindu *zamindars* and one "native Portuguese". Seventeen of the indigo factories in the SouthEast part of Purnea were under the management of one Mr. Ellerton, an European. On an average each factory contained between 5 to 6 pair of vats. The vats were in general from 20 to 22 feet square. Everything in the factory establishment was on an expensive footing. However, the remaining 50 European factories in the rest of the district were small and in a rather bad state, yielding only a quarter of the larger factories. [72]

---

70 *Ibid.*

71 Martin Montgomery, *Eastern India*, vol. III: 257

72 *Ibid:* 248; F. Buchanan, *Purnea:* 388-398.

In the district of Bhagalpur indigo cultivation was slightly less than that of Purnea. The first indigo factory was started by the Civil Surgeon, Glass, in 1793.[73] There were 32 factories in the district of Bhagalpur at the time of Buchanan's survey.[74]

Manufacture of Indigo in the district of Patna and Gaya was of very little importance. In the district of Patna and Gaya there were only 7 factories at the time of Buchanan's survey. The *zamindars* were in general, averse to indigo plantation. Raja Mitrajit Singh of Tikari "had expelled it entirely from his great estates". As a matter of fact, several factories had been totally abandoned and the remaining seven were far from thriving.[75] In the district of Shahabad, the number of indigo factories was 18.[76] Thus by the end of the eighteenth century indigo industry in the province of Bihar was widely spread particularly in the districts of Saran, Tirhut, Purnea and Bhagalpur. The industry was almost in the control of the European Agency Houses of Calcutta.

In the early stage of indigo industry in Bengal and Bihar the European planters were required to obtain permission from the

---

73 O'Malley, *Bengal District Gazetteers, Bhagalpur,* 1911:74

74 F. Buchanan, *Bhagalpr:* 437-438.

75 F. Buchanan, *Patna-Gaya,* vol. II: 527.

76 F. Buchanan, *Shahabad,* vol. II: 135

Company to hold lands for erecting indigo works. Usually no factory was allowed to possess more than seventy-five *bighas* of land. But after 1813 this restriction was relaxed. Notwithstanding relations imposed on holding land in rural areas, each indigo planter had managed to bring extensive land under his possession. In Bhagalpur, from 1807-1816, one Mr. R. Davidson brought under Indigo cultivation as much as one lakh *bighas* of land.[77] In Tirhut 16 indigo factories had acquired in 1802 as many as 596 *bighas* of land for indigo cultivation.[78] In 1810 when the number of factories increased to 25,[79] the number of *bighas* of land under indigo cultivation also increased considerably. In Purnea 50 Indigo factories, which were supposed to be in a bad state, had brought during the time of Buchanan's survey not less than 60,000 *bighas* under indigo cultivation.[80] In Shahabad too not less than 17,000 *bighas* of land were occupied by indigo cultivation.[81]

Broadly speaking, two system of indigo cultivation prevailed in Bengal and Bihar - the *nijabad* and *rayati*. Under the *nijabad*, the cultivation was carried on land over which the factory land had

---

77 *Report of the Select Committee of the House of Lords*, 1830: 497-498

78 H.R. Ghosal, 'Tirhut at the end of the 18th and the beginning of the Nineteenth Century', *JOBRS*, vol. XXXIX, December, 1953: 365

79 *Ibid.*

80 F. Buchanan, *Purnea*: 397.

81 F. Buchanan, *Shahabad*: 315

tenancy or occupancy rights. Here the cultivation was carried on by the establishment of ploughs, bullocks, and servants maintained at the planter's expense.[82] Under the *rayati* the planters bound the *ryots* by an agreement to sow indigo on land, which belonged to the *ryots*, and for which he paid rent. The *ryots* would sell the produce to the planters at prices settled beforehand. Advance was given to the *ryots* for the purpose - generally Rs. two per *bigha*.[83] Sometimes the indigo planters obliged the *ryots* to sow indigo in preference to any other crop by forcing advances on them.

In North Bihar, *zirat, assamiwar* and *khuski* System worked[84]. In the *zirat* System cultivation was carried on by means of hired servants on the factory land itself. Under the *assamiwar* system, also known as *satta* system in Saran, indigo was grown by *ryots* who were tenants of the factory, under direction of the factory servants at a fixed rate per *bigha*. By *satta* the *ryot* received advances for growing indigo in a certain portion of their holding. In Champaran the *ryots* grew indigo on three *kathas* per *bigha* of their holding.[85] In Purnea[86],

---

82 L.SS. O'Malley , *Muzaffarpur District Gazetteer*, 1907: 143.

83 Minute of J.P. Grant on the Report of the Indigo Commission, Buckland, Bengal Under Lieutenant Governors, cited in N.P. Singh, 'The Indigo Industry of Bihar', *POIHC*: 504

84 *Chamaparan District Gazetteer*: 75

85 W.E. Ress, Acting Collector of Purnea to Board of Revenue, 30 Oct. 1802, *Purnea Collectorate Records*.

86 F. Buchanan, *Purnea*: 397-393.

Tirhut, Saran, Champaran[87], the indigo crop was sown in the best grounds.

Indigo cultivation was not very remunerative. Price given for the indigo plant was quite inadequate in proportion to the labour involved in it. The same land, which could give a *ryot* in Purnea two rupees and twelve *anas* worth of summer rice, produced indigo which was worth only one rupee.[88] Buchanan rightly remarks - 'the price given here (Purnea) seems totally inadequate to induce the farmers to cultivate the plant".[89] Moreover, the land was occupied with indigo during the whole of the year. The cultivator received advances at the rate of Rs. 3 a *bigha*- Rs. 2 in autumn and Rs. 1 more at sowing time. If there was a total failure of the crop, the cultivator was given Rs. 3 and six *anas* in addition to the advances already received.[90] Thus, the cultivators received six rupees and six *anas* per *bigha* for indigo cultivation for his single crop of the year. The result was that generally the cultivators did not like to sow indigo in their land. Sometimes land with standing crop was forcibly ploughed up and sown with indigo. In March 1800, 85 *ryots* of *pargana* Burwarrah and

---

87 Selection from Records of the Grant of Bengal, vol. XXXIII, Part I, Paper relating to indigo cultivation in Bihar: 32.

88 F. Buchanan, *Purnea:* 302

89 *Ibid.*

90 *Indigo Commission Report:* XI,XII cited in K. Datta (ed.), *CHOB*, vol. III, Part I, Patna, 1976: 463

Bachour complained to the Collector of Tirhut that the native servants of Mr. Mac. Creight, an indigo planter, had ploughed up their land having standing grain crop and sowed indigo. The *ryots* also informed the Collector that they would abscond from the Company's territories if the indigo planter continued to oppress them.[91] Sometimes the indigo planters sometimes obliged the *ryots* to cultivate indigo without issuing advance or by giving a very small amount as advance. The poor cultivators had to meet the demand of land revenue by selling out their cattle and other agricultural implements. Representing such acts of oppression in an *arzee* to the Collector of Tirhut in January, 1791, Mr. Sardar Singh, the *vakael* of several renters of *pargana* Sarassa wrote:

"The year (1798) the *aumeen* has measured the indigo fields, yet Mr. Hunter has paid nothing either on account of land rent or cultivation. We have paid our rent upto the month of *aughun* with borrowed money and by selling our cattle, and we rely on the revenue of indigo lands alone for the *poose* installments. Now Mr. Hunter says that another *aumeen* is to the deputed to measure them, and that until that is done he will not pay us any thing; and a *chuprassy* has

---

[91] From Mr. C. Sweedland, Collector of Tirhut, to Mr. Mac Creight, indigo planter, dated 8th March, 1800, *Muzaffarpur Collectorate Records;* Also, letter, from the Collector of Tirhut to Mr. Kick, Superintendent of the Indigo Manufactory at Dooley, dated 31st March, 1790, *Tirhut District Records,* vol. 187: 213

been sent at present (from him) to enforce the cultivation of the *faugunnea.* Until we receive our payment according to usage and in the manner Mr. Peter made them and unless the measurement taken by the first *aumeen* is admitted, we will not cultivate indigo. We therefore, pray that Mr. Hunter be directed to pay us in the customary manner and as Mr. Peter made them and unless that at the present the amount may be carried to our credit in pact of our rent to government".[92] The planters also took leases of lands from the *zamindars,* for which they paid rent to the latter, while they themselves realized rents from the *ryots.* In this way they brought large tracts of land under indigo cultivation.

Indigo cultivators were subjected to various other kinds of oppression. Every indigo factory had native *lathials* or goons who committed various acts of violence for the master.[93] *Gomastas* of the factories exploited the cultivators in various ways. They managed to take a certain sum out of the money advanced to each cultivator for indigo cultivation. In Bihar a *ryot* received only Rs. 2 a *bigha* for his indigo and out of this amount Re. 1 went into the pocket of the *amla,*

---

92 *Arzee* from Sardar Singh, *Vakeel* of Several Renters of *Pergunnah* Sarassa attached to the letter, dated 26th January, 1791 from the Collector of Tirhut to W.O. Hunter, Indigo Manufacturer, Dooley, *Tirhut District Records*, vol. 189: 74.

93 H.R. Ghosal, *Economic Transsition:* 94-95.

amin and *khalasi*[94]. Sometimes they manipulated accounts to saddle the *ryots* with debt and exacted illegal gratification from them. They even forged contract for indigo cultivation in the name of the *ryots* entirely unconnected with such agreement and harassed them. Cultivators generally feared them and had to sow indigo in their lands despite their disinclination. The Government, no doubt, passed a number of Regulations to protect the *ryots*, but oppression of the *ryots* continued unabated.

PREPARATION OF INDIGO DYE

The different stages of the preparation of[95] the indigo dye were as follows: (i) placing of the cuttings in vats; (ii) soaking: the produce was steeped in water in order to enable it to absorb the substance or the dye of the herb. (iii) straining or refining; (iv) beating to enable the water to absorb the dark blue hue, (v) sedimentation, by allowing the dye to settle (vi) drying (viii) storage.

---

94 General Appendix to Report from Select Committee of Commons, 1832: 898-900, cited in N. P. Singh, 'The Indigo Industry of Bihar', *POIHC*: 505

95 The preparation of the Indigo dye has been described with minor differences by Finch (1609), Palsaert (1620-6), with reference to the Agra-Biana region in the seventeenth century. These methods, it will be observed were substantially the same as followed in the 18th and mid 19th centuries in Bihar.

The appliances used for the manufacture of indigo were the - Indigo beating vat (*mahai ke hauj* or *haud*); the upper or steeping vat (*bojhai ke haud*), the rake for agitating the fermented liquor (*phahuri, pharuha*), the water reservoir (*khajana*); the beams of wood for pressing the plant (*dabauta).* Under the pressing beams were placed bamboos, which were laid immediately on the top of the plant.[96]

The process of manufacture, of which indigo[97] was called *mahai,* began in June. The plant was brought in carts or boats to the factories from the fields in small bundles called *pulas.* The carts and boats were also obtained on the advance system, the advance being at the rate of Rs. 8 per cart and Rs. 12 per boat. In some places pack-bullocks or buffaloes were used as a means of transport.

The first process was the steeping of the plant leaves in water in order to extract, by fermentation, the colouring principle of the plant. The bundles of plant were closely stacked in rectangular steeping vats. The vats were built of strong brickwork faced inside with Portland cement for a smooth surface. Buchanan reported that in

---

96 Grierson, *Bihar Peasant Life: 96*

97 L.S.S.O 'Malley, *Bengal District Gazetteer, Purnea.* 136-39. For methods employed for the extraction of indigo dye, also see H.C. Bhardwaj, K.K. Jain, 'Indian Dyes and Dyeing Industry' in *History of Science and Technology in India:* 56-57; W.W. Hunter, *Statistical Account of Saran District:* 282-283; *Statistical Account of Purniah:* 366-367.

Purnea the vats were generally from 20 to 22 feet square[98]. The bundles were arranged in two layers in the steeping vats. The lower layer was placed upright with the branches pointing upwards, while the upper layer rested on the first in an inverted position, so that the best leaves were massed in the middle of the vat. Occasionally when the plant was small, a third layer of bundles, laid on their sides, was inserted between the other two. A number of stout bamboos were then laid parallel to one another over the top most layer. On the bamboos, and at right angles, to them were fixed strong beams or rails, which prevented the plants from rising over the sides of the vats when they would start swelling during fermentation. The seventeenth century vats of Agra did not have arrangement for fixing beams to press the plants. Plants were placed inside the vat, without following any particular pattern, which was then filled with water[99].

The next process was to pump water into the steeping vats with as little delay as possible after the bundles had been stacked. A delay would lead to the plant generating heat and the leaves burning on blackening. The water for the vats was obtained either directly from a river or tank, or in the first instance was collected in an adjoining

---

98 Palsaert gives the measurement of 38 ft. in perimeter, about 5–6 feet deep for the vats of Sarkhej – region. Finch speaks of a long cistern.

99 Finch speaks of the crops being pressed down with many stones in the Agra region. Also see, K.K. Trivedi, *Agra: Profile of a Mughal Suba*:79

large masonry reservoir, from which it was pumped or run into the vats as required. The latter method was preferred as it also allowed a rough filtration of water and gave time for the suspended impurities to settle below the level of the surface water.[100] The temperature of water in reservoirs was also raised by the Sun's heat appreciably higher than in tanks or rivers.

The steeping vats having being filled with water, the compressed indigo plant was allowed to ferment from 10 to 12 hours if it was a February sowing. In cold damp weather and in case of April sowing fifteen to eighteen hours were necessary.[101] During the steeping, indigo colour located in the leaves of the plant in the form of a glucocide, called indican and easily soluble in water[102] was converted into indoxyl glucose (sugar dextrose). This chemical change is brought about by the action of bacteria during fermentation.

---

100 George Watt, *A Dictionary of the Economic Products of India*, vol. IV: 428.s

101 L.S.S O' Malley, *Bengal District Gazetteer*, Muzaffarpur, 1907: Chapter on Indigo Industry; With reference to the Agra Biana Region, the process of steeping lasted for 'certain days' according to Finch; for sixteen or seventeen hours, according to Palsaert; and for twenty four hours, according to *Letters Received*: Foster, *Early Travels in India*: 152-53; Palsaert, *Remonstrantie*: 10-13; *Letters Received*, vol. IV: 270-1.

102 Palsaert, *Remonstrantie*: 15; W.A. Davis, "The Nature of Changes Occurring during the Extraction of Indigo from the Java Plant', *Indigo Publication*, No.9, Agriculture Research Institute, Calcutta, 1921:2, J.F. Thorpe and H.A. Whiteley, *Thorpes Dictionary*, vol. IV: 432-38, cited in K.K. Trivedi, Agra: *Profile of a Mughal Suba*: F.N.87

Simultaneously much gas is produced due to presence of enzymes in the unfermented parts of the leaves. This also produces acid in the solution, which if not checked is harmful. The quality of the resulting indigo falls off practically proportionally to the development of acidity.[103] In turn the excess acid formation could be checked by the use of mild alkaline water. It was thus important that the plant was not over steeped. Over steeping led to a larger produce but inferior colour, and under steeping the reverse. Both extremes were to be avoided, as a medium of weight and colour in indigo was the most profitable to the planters. Good indigo was invariably light and bad indigo heavy.[104]

Various tests were observed to ascertain when the fermentation was complete. The three best know tests were as follows- (i) during fermentation bubbles of hydrogenous gasses came to the surface and were easily ignited on the application of a lighted match. However, when this process has run its full course, a non-inflammable gas, carbonic dioxide, was given off by the submerged plant (ii) The temperature of the vat continued to rise until the climax of fermentation, had been attained, when it began to fall slowly. (iii) The experienced eye, however, perceived that the liquid a highly diluted

---

103 Davis 'Changes occurring during the Extraction of Indigo'. 4

104 W.W. Hunter, *Statistical Account of Purniah* : 366

indigo, had attained a fine bright orange colour and a thick frost of dark blue or bluish-black colour rested over the liquid. From these signs and from the general appearance of the vat, the planter knew that it was time to run the liquid to the adjoining beater vat, on a level with the floor of the vat.[105]

The 'beater' vat, was also built of brickwork, and was generally long and shallow.[106] The vat was divided along the greater part of its length into three compartments by two parallel walls. This left spaces at both ends for the free circulation of the current. The beating machinery was operated by steam engines in big European factories. The result of this beating process was to oxidize the clear greenish liquor (by the influence of atmospheric air from which oxygen is absorbed) and particles or 'grains' as they are termed, of indigo colouring matter were separated. During the beating the carbon dioxide previously present in the liquid was set free and formed on the surface, in conjunction with air bubbles, a deep blue froth, which

---

105 *Ibid:* 366

106 In the seventeenth century, in Agra region the vat used for beating was circular in shape. K. K. Trivedi, *Agra: Profile of a Mughal Suba,* points out that the circular vats (of Agra *Suba*) for beating or churning the liquid was a superior technology as against the rectangular vats. The circular shape of the container prevents the formation of eddies; instead it brings crystal, towards the centre of the vessels when stirred. The rectangular vats resulted in the formation of the eddies at its corners.

disappeared as the oxidization was completed or was reduced by a little rape seed oil being sprinkled over it.[107]

In minor factories, in which steam power was not used, beaters or coolies were specially employed to beat the fluid. They would plunge into the fluid which was about knee deep and beet with sticks, paddles or *pharuas*, at first slowly and gently and afterwards more quickly and strongly. Eight to fourteen men were required for each vat according to its size.[108] Beating was also done by labourers with the help of a wheel. The beating was generally completed in three or four hours if the plant had been properly steeped, but if under steeped it took as much as five or five and a half hours to oxidize the fluid. When beaters now came out of the vat the fecula was permitted to settle. If it had been properly beaten, the fecula would perfectly subside in an hour or less. Care had to be taken never to overbeat a vat, as the fecula grains then broke into very fine dust and did not possess sufficient gravity to subside. The froth after rising to a great thickness gradually subsided and the grains of indigo began to precipitate themselves, leaving a clear super natant liquid. In three to four hours they had completely settled. The clear water above was drawn off by means of holes perforated in the sides of the vats, one

---

107 W.W. Hunter, *Statistical Account of Bhagalpur*: 180.

108 W.W. Hunter, *Statistical Account of Purnea District* : 366

above another, and closed by pins and allowed to run into the waste drains. This left a thick sediment of indigo colouring matter, called *mal* and technically termed the *fecula.* at the bottom of the beater vat.

The fecula was passed into the fecula vat, and thence pumped without much delay into boilers. Boilers came to India with English planters in later eighteenth century for use in the wet leave process.[109] There is no reference to the use of boilers in the seventeenth century and even Europeans tried to obtain indigo through indigenous methods.[110] The fecula was generally boiled from eight to ten hours, until the froth entirely disappears from the surface. It is only in the boilers that any attempt was made at refining or cleaning. The grains of indigo, which when once formed are insoluble in water, are washed with clear water, which after a second subsidence is run off carrying with it vegetable matter and other impurities. This operation is repeated as often as time will allow.

The boiled fecula was next taken onto a trough or small flat vat, technically termed, as, the table. On the table was stretched a strong cloth supported by a kind of trelliswork. On this cloth the fecula was

---

109 Martin Montgomery, *Eastern India,* vol. III: 990, Watt, *Economic Products,* vol. IV: 428-435

110 W. Foster, *E.F.I,* 1646-1650: 77, 189, 202-3; Ishrat Alam, "New Light on Indigo Production Technology During the Sixteenth and Seventeenth Centuries', A.J. Qaisar and S.P. Verma (eds.), *Art and Culture, Felicitation Volume in Honour of Prof. S. Nurul Hasan,* Jaipur, 1993:124.

deposited by repeatedly returning the liquor that had passed through the cloth into the trough, until the liquor draining through the cloth appeared of a straw on sherry colour with an entire absence of a blue tint. It was then allowed to flow into the waste drain, and the fecula was deposited on the cloth in the trough, which by this time had the consistency of jelly. It was collected and put into rectangular press boxes made of wood with numerous holes on all sides for letting out surplus water. The boxes were first lined with stout cloth and then filled with fecula, after which pressure was applied by means of lever presses. After the indigo in the press boxes had undergone pressure for about eight to twelve hours. and the slabs of indigo felt hard to touch, the press boxes were dismantled, and the slabs cut into small cakes, which were put into the drying godown on shelves. The godown was kept more or less dark to prevent too rapid a drying which was apt to crack and splinter the cakes. In November & December, when the cakes were thoroughly dry, they were packed into mango wood chests, containing on an average about 4 & ½ to 4 *maunds* (four to seven hundred cakes) of indigo, and forwarded to the Calcutta agents of the factory, to be sold there by public auction or to be shipped directly to England.

Indigo was used primarily for dyeing cloth blue or its different shades i.e. water blue, grayish and sky blue, blue black, dark blue-green, sap green and yellow green. The proportion and sequence of putting in other ingredients determined the actual tint obtained. If

turmeric was applied first and indigo afterwards it produced dark blue-green, but if the process was reversed, the colour was yellowish green. Similarly, the proportion of each of the three ingredients viz. indigo, *shahas-i-khasa* (a red colour said to be extracted from a variety of saffron) and lemon, decided whether the shade produced was *sosani* (purple) or *khas-klesi* (like poppy seeds).[111]

[111] G.Watt, *Pamphlet on Indigo*: 177

CHAPTER - VI

MINING, METALLURGY AND METAL CRAFT

An account on the crafts of Bihar, cannot be considered exhaustive without a discussion on the indigenous mining which was the mother of metal craft. The clusters of hills extending over Monghyr, Bhagalpur, Patna and Gaya districts and continuing further south in Chotanagpur, abound in rich, vast and varied mineral resources, such as quartz, granite, jasper, hornstone or granular quartz, mica, crystals and Iron ore.[1] The availability of these minerals gave impetus to the development of metal craft.

The Southern hills of Bihar stretching from Gaya to Ramgarh had a number of mica mines, which were worked for ten month in the year.[2] Thirty-five rupees a year was the average per capita income of the labourers in these mines when Buchanan visited them in the course of his survey. The miners were usually paid in salt, grain, and cloth, mostly given in advance. The miners were all of the tribes, *bhuinghars*, *mushars*, and *rajwars*.[3]

---

1 F. Buchanan, *Behar and Patna*, vol. I: 452, *Bhagalpur:* 369-399. *Rennells Journal*: 109-111.

2 F. Buchanan, *Patna-Gaya*, vol. II: 460.

3 *Ibid.*

The hills of Chotanagpur and Santhal Parganas contained rich iron ores. The working of iron mines was a profitable industry of Ramgarh, from where iron was exported to other parts of Bihar and to Bengal proper.[4] Between Bhagalpur and Dumka, Buchanan found several iron mines, which were worked by about a hundred houses of smelters[5]. Referring to Monghyr, Twining observed the existence of iron ore that was "more precious than gold to the industrious inhabitants of Monghyr, sustaining by its abundant and cheap supplies an extensive manufactory of iron utensils of almost every description".[6] The largest deposit of iron ore was in Sighbhum, which on account of its immense potentialities of mineral resources, had earned the name of "India's Northern Ontario"[7]. The hills near river Subarnarekha contained a species of copper which was inferior in quality.[8] Lead could be found near about Dumka. In the Singhbhum district of Bihar there was a copper-bearing field extending to about eighteen miles in length and delineated by many ancient workings.[9]

---

4 F.Buchanan, *Behar and Patna,* vol. II: 676.

5 Martin Montgomery, *Eastern India*, vol. II: 191

6 Twining, *Travels in India - A Hundred Years Ago*: 127-28.

7 *Bihar and Orissa Administrative Reports*, 1936-37 :118

8 *Journal of (Royal) Asiatic Society of Bengal*, Calcutta (New Series), vol. XI, Part II: 739.

9 Brown and Dey, *India's Mineral Wealth*, Oxford, 1995: 146.

Ralph Fitch states that at Patna the people found gold by digging. "They dig deep pits in the earth, and wash the earth in great balls, and therein they find the gold; and they make the pits round about with brick that the earth fall not in".[10] De Laet also states that "in the neighbourhood (of Patna) there are said to be many gold mines".[11]

Diamond mining too was carried on in the seventeenth century. Immediately north of Bihar in the sub-Himalayan tract of Purnea district there was a region known as *Gokradesh* or *Kokradesh*, *Kokrah* (ancient name of Chota Nagpur) famous in Jahangir's time for its valuable diamond mines. However, all trace of these mines is lost after 1612. Diamonds possessed by Akbar and Jahangir are said to have been drawn from the mines of Chota Nagpur.[12] Jahangir writes in his *Memoirs* that during the 12th year of his reign Ibrahim Khan Fath Jang, Governor of Bihar, send him nine diamonds from the State mine of Bihar and from the collections of the *zamindars* of Bihar. One of the diamonds weighted 14 ½ tanks and was valued at Rs. 10,00,000.[13] Tavernier refers to diamond mining at Soumelpour in

---

10 W. Foster, *Early Travels in India.*

11 De Laet, *The Empire of the Great Moghal*: 77

12 Ball, *Manual of the Geology of India*, vol. II: 1-58

13 Jahangir, *Tuzuk i Jahangiri*, (ed.), Syud Ahmad, trans. A. Rogers and H. Beveridge, London, 1909-14: 373, 379.

Lohardaga district of Chota Nagpur. Diamond was found in the sand of river Koel near that large town. About 8000 persons of both sexes and of all ages used to work during the period between December to February. "After the great rains are over, i.e. usually in the month of December, the diamond seekers await the conclusion of the month of January, when the river becomes low, because at that time in many parts, it is not more than two feet deep, and much of the sand is left uncovered. Towards the end of January or commencement of February, from the town of Soumelpour and also from another town which is 20 *coss* higher up the same river, and from some small villages on, the plain about 8000 persons assemble".[14]

The metal working castes of Bihar were chiefly the *kamars* and *lohars*. The *lohars* were distinguished from the *kamars*. The former worked on iron alone. The latter did not confine themselves to the fabrication of iron implements alone but worked on any kind of metal like brass, bronze as well as gold and silver.[15] The regular village blacksmiths, whether *kamars* or *lohars*, who were employed in making implements of agriculture were usually paid for their labour in grain, receiving 4 *arhis* (about a *maund*) of paddy per plough. They could also be a regular part of the 'estate' establishment and were

---

14 Tavernier, *Travels in India*, vol. II: 84-86, 89.

15 Risley, *Tribes and Castes* : 388; George A. Grierson, *Bihar Peasant Life*: 85.

entitled to a certain share of the crop.[16] Buchanan also noted two classes of blacksmiths who did not belong to the manorial establishment - One, the blacksmiths in the forests who forged the crude iron as it came from the smelters; second, the blacksmiths in the town who made the finer kind of goods.[17]

Buchanan noted that in some rural parts of Bhagalpur, Patna, and Gaya districts the professions of the blacksmiths (*lohar*) and Carpenter (*barhai*) were united in the same person. Such persons chiefly made whole implements of agriculture. In some places they were called *barhai* and in other places *lohar* although in general the people were considered to be belonging to the same caste.[18] However in most parts of the Purnea district, the *barhai* did not make the more common implements of agriculture, which was done by the blacksmiths (*lohar*). The *barhai* chiefly made household furniture, boats and carts.[19]

Iron smelting was confined to the *lohars* of Chotanagpur and was supposed to be a much less respectable form of industry than

---

16 Martin Montgomery, *Eastern India,* vol. III: 261; Risley, *Tribes and Castes*: 291.

17 Martin Montgomery, *Eastern India,* vol. III: 261.

18 *Ibid* ; Risley, *Tribes and Castes*: 23.

19 F.Buchanan, *Purnea:* 529.

working on iron, which other people had smelted. Many of the iron smelters carried on cultivation for a part of the year.[20] In Santhal Parganas, *lohars* often cultivated themselves while the women of the household laboured at the forge.[21] *Marya* was also a small iron working caste found in the Santhal Parganas.[22] *Agoria* and *lohra*, tribes of Lohardaga lived almost entirely by iron smelting.[23] The other castes involved in metal working in Bihar were the *kaseras* or *kanseras*, who dealt entirely in making or repairing vessels of copper, brass or bronze and bell metal. Another caste, called the *thatera*, also worked in metals. They specialized in polishing and engraving the utensils made by the *kaseras* and in manufacturing ornaments.[24] In Purnea, the same name *kasera* and *thathera* was used indiscriminatorily for those who made vessels and those who made ornaments of brass, pewter (*justah*) or tin.[25] In Bhagalpur, the *rangdhaluyas* or *ranggarhuyas* worked on tin and pewter (*justah*), making ornaments for women and tinleaf.[26]

---

20 Risley, *Tribes and Castes*: 23.

21 *Ibid*: 80.

22 *Ibid*:125.

23 *Ibid*: 80.

24 T.N. Mukharji, 'A. Monograph on Brass, Bronze and Copper Manufacturers of Bengal' *Art in Industry through the Ages*: 279; Martin Montgomery, *Eastern India*, vol. II: 260.

25 F.Buchanan, *Purnea* : 532.

26 Martin Montgomery, *Eastern India*, vol. II: 260.

By far the larger number of blacksmiths, the makers of rough agricultural implements, worked by themselves in their own homes without any assistance. The women folk never rendered any assistance.

An interesting system, somewhat analogous to cooperation, is reported to have been in vogue, to some extent, in the Santhal Parganas. The blacksmiths would often group themselves into a band of six men to conduct a work shop conveniently situated under a grove on a shady tree in the villages, while another man supplied the implements and capital. All the six men would work the whole day, and out of the seven articles manufactured, each of the labourer would get one, while the seventh article was given to the man who supplied the implements and capital[27].

In the district of Bihar the *lohar* numbered 1219 of whom 207 were concentrated in the Patna city. Those who combined both the profession of *lohar* (blacksmiths) and *barhi* (Carpenter) numbered 513 in Behar district.[28] The *lohars* produced goods entirely for internal consumption. They made vessels for boiling sugar and sweet meats, and the drums called *nakarah*, nails, locks, and chest hinges, for the

---

27 T.N. Mukharji, *A Monograph*: 337.

28 F.Buchanan, *Patna-Gaya:* (Appendix), 770; W.W. Hunter, *Statistical Account of Patna District*: 143.

doors of the natives turn on pivots. In towns in Patna district the *lohars* make 4 *anas* a day and about 2 *anas* in the rural areas. A few *lohars* called *pinjrasaz* lived entirely by making rather neat cages for birds, composed of iron wire. The blacksmiths also make the shoes and nails of horses.[29]

In Patna, the *kaseras* were numerous, numbering 129 and a total of 478 in the district of Behar. The *kaseras* of Daudnagar earned a profit of Rs. 9.[30] Within the *kaseras* there was further specialization. The chief *kasera* would only melt the materials, form the moulds and cast. He did not make more than 40 *sers* in one month. A man was also hired for beating the brass, a task requiring tremendous dexterity. The beater received Rs 1 & ¼. By far only one man was employed for casting, but in some houses two casters were employed. They did not make any fine work like the brass workers of Benaras but only manufactured common plates and utensils for cooking or washing.[31] There were 44 families in Patna city who made the coloured pewter foil (*panni*) used in decorating cheap bracelets and the model tombs (*tazia*) carried during the Muharram festival.[32]

---

[29] F.Buchanan, *Patna-Gaya:* 640.

[30] *Ibid*: 640, 270(Appendix).

[31] *Ibid*: 640.

[32] *Ibid*; W. W. Hunter, *A Statistical Account of the Patna District*: 149.

Only a few blacksmiths had capital that would enable them to work on a large extent. In Patna, the blacksmiths preferred to use their capital in purchasing vessels made at Kangtoya between Calcutta and Murshidabad, which could not be imitated in Patna and only a few houses cast only two *mans* a month.[33] At Gaya, profits of the *kasera's* were same as Patna and Daudnagar - a family of seven persons who might have two casters, had a daily expense of 9 *anas* or Rs.16 & ½ a month.[34] The goods made here were chiefly plates, cans without handles (*lota*) for holding water, shallow pots handles or cover (*tasta*) for cooking.[35]

There are certain important points, which emerge in relation to iron smelting in Bihar. First, there was widespread availability of various kinds of iron ores in Bihar.[36] It gave birth to what can be termed as 'back yard furnaces'. Buchanan wrote about the very rich deposits of iron-ore in Bihar, which provided the raw-material base for local metallurgy. Second, in the absence of any other vocation, the smelters were always ready to utilize the poorest and inferior ash

---

33 F.Buchanan, *Patna-Gaya*: 641.

34 *Ibid.*

35 *Ibid.*

36 The availability of various kinds of iron ore in almost all the regions outside the alluvial plains of the Ganges, the Indus and Brahmaputra rivers has been commented by Holland and Fermor cited in Dilip Chakraborti. The Beginning of Iron in India', *Antiquity*, vol.I. No.198, June 1976: 114-124.

ridden ores of iron, after winnowing and washing them repeatedly into workable quantities.[37] Iron smelting was a labor-intensive operation, which could utilize the services of all the members of the family. Third, Iron smelting was primitive and completely isolated from technological innovation. In his description of the production process, Buchanan, has remarked on its low technological level: poor preparation of the ore mass, lack of knowledge of the ore and charcoal preparation by the local metal workers, whom he characterized as totally, "ignorant timid creatures". The people of Bhagalpur district had very imperfect skill in working their iron mines. The heat of the furnace was so trifling that it could not vitrify the stony particles of the ore. Consequently they had to be reduced to a coarse powder to separate these particles by winnowing. The only means of performing this operation was by beating the ore with a stick, whenever it was found in solid masses. The same people would mine, prepare charcoal, and smelt. This precluded the possibility of judging the nature or richness of the ore. They never weighed nor measured either the ore that went to the furnace or the masses of crude iron that came from it.[38]

---

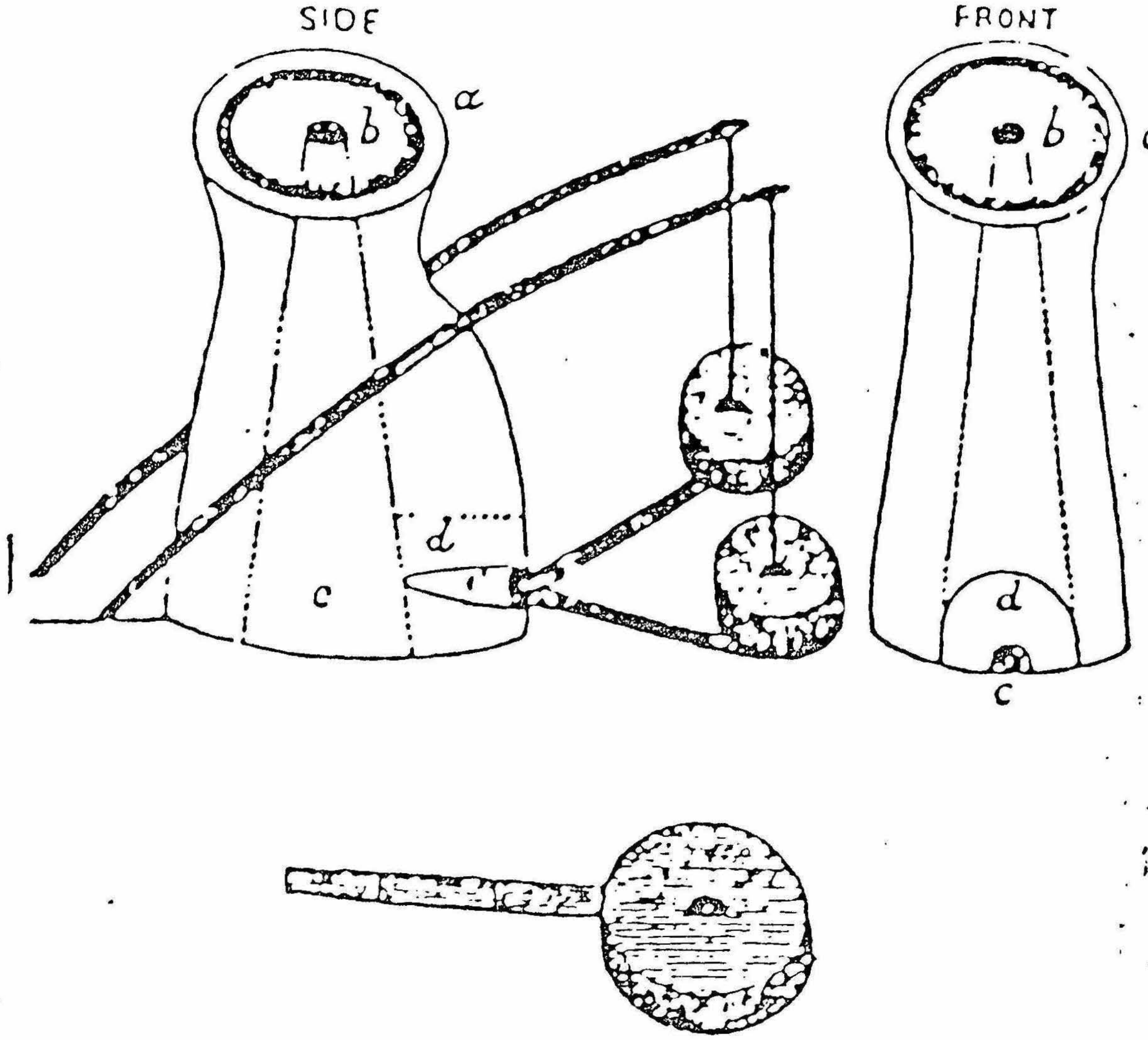
[37] The Surveys of Ball, Dunn, Krishanan, Roy Chowdhary have been cited in Dilip Chakraborti, 'The Beginning of Iron': 116-117; Also Iqbal Ghani Khan, 'Metallurgy in Medieval India, 16-18th centuries': 72.

[38] Martin Montgomery, *Eastern India,* vol. III: 261.

Iron smelting was thus very primitive, Buchanan has given a description of the smelting furnaces at Bhagalpur.[39] (see annexed drawing) The furnace consisted entirely of kneaded clay with crude, though indigenous, bellows attached. The clay was carefully dried before use. The furnace was 3 & ½ feet high. The upper extremity was round and about 18 inches in diameter. It was slightly concave, and in its centre was a hole (b) about 2 inches wide, which descended gradually, widening to the ground (c) where it was from 9 inches to a foot in diameter. Under the top the furnace contracted a little, and then it swelled out like a bottle, but very little only towards the back and side, and a good deal towards the front, in the bottom of which there was semi-circular opening (d), which communicated with the inner cavity of the furnace (b,c). In this opening was laid a pipe of baked clay (e), which received the muzzles of the bellow; and when going to work, the opening and the pipe was covered with kneaded clay. Some charcoal was put in the furnace, and having been kindled, the bellows were applied. The cavity on the top of the furnace was then covered with charcoal, and as this kindled, some of the prepared ore was thrown on it, and thrust into the hole as the fuel below was consumed. This was repeated until the ore intended for the

---

39 *Ibid;* 261-63. The annexed drawing has been taken from *Ibid:* 262. For a description of the furnace/hearth, see also T. N. Mukharji, A Monograph: 331; L.S.S. O' Malley, *Bengal District Gazetteer*, Santhal Parganas, 1984: 201-202; W.W. Hunter, *A Statistical Account of Monghyr:* 138.



Drawing taken from Martin Montgomery, *Eastern India*, Vol.III : 262

smelting had fallen though the aperture; and the fire was kept up until the workmen judged that the operation was complete. The clay and the pipe were then removed from the front of the furnace, the mass of iron was taken out. It was cut into two while still hot. It was then cooled in mud. A good deal of the mud penetrated its pores, and added to the weight. It was always solid in this state.

The bellows (*bhathi* and also *bhanthi* in the South of the Ganges) were the most ingenious part of the apparatus. Bellows varied greatly in their form and size. For the smaller furnaces a pair of bellows was used, each made from a single goat skin. The bellows employed for the larger furnaces were made of bullock hide. Some forms were worked by hand, while in others one or two persons stood with one foot on each bellow and transferred their weight alternately from one to another.[40] The hand bellows were the *duhanthi*, when worked with both hands, *ekhanti* when worked with one hand and *supaua* in Southwest Shahabad. In the Southeast it was also termed the *kath banthi*.[41] The bellow would provide a continuous blast.[42]

---

40 G. Watt, *A Dictionary of Economic Products*: 512.

41 George A. Grierson, *Bihar Peasant Life*: 86-87.

42 The use of bellows is also depicted in Mughal miniatures (d 1595). The bellows are made of skin bags with a delivery tube at the bottom and connected with the furnace sideways. The opening of the skin bag consists of the two chippers (wooden) to stop the air to be pumped into the furnace.

Each bellow was formed from a cylinder, about 18 inches in diameter, and 6 inches high. This was hollowed, so as to leave thin edges and a thin bottom. The top was covered with a hide, tied firmly round the mouth of the wooden vessel. However the skin was not tight like a drum. On the contrary skin was larger than the space it covered and it could be moved up and down. In its centre was a hole about an inch in diameter, through which was passed a wooden button, that held a string tied to the end of a bamboo, fixed like a spring of a turner's lathe. When at rest, the spring raised the skin, so that its upper surface was a hemisphere. The muzzle of the bellows, a bamboo, about 4 feet long, passed through a hole in the side of the wooden cylindrical. Two of these bellows were placed close to each other. The workman, who was to blow with them, put his heel first on the hole in one skin and depressed it, expelling the wind by the nozzle. He then put his other heal on the other hole. Thus treading alternately on the two cylinders, he expelled the wind, while the spring raised the hide, when he lifted one of his feet to throw the whole of his weight on the other. When power had to be increased another workmen stood behind, and both would tread at the same time. This gave as much wind as the bellows as one of the blacksmiths forged, but with a very severe labour. During this operation the mass of metal would not appear to be ever melted, it

was only so far softened that the particles where in a slaggy porous mass[43].

The lot of the iron smelters is reflected in Buchanan's report on the 150 Iron smelters (*kol*) residing in Banka. They smelted for only five months in a year, spending the rest of the time on farming, gathering of wild fruits or *mahuyaa* flowers and idling during the two month of wedding season. On an average they wrought 20 days a month, throughout the year. An iron smelter assisted by his wife, and boy or girl who helped in collecting ore could smelt twice a day. They could thus procure daily about 5 *sers* of iron. They exchanged this iron for 7 & ½ *sers* of rice. This was barely enough for family subsistence. Each family therefore made in the year 30 *mans* of crude iron, or in all 4500 *mans*. In Tarapoor there were 100 families of smelters, which made annually about 3000 *man* of crude iron. In Lakardewani the smelters made 2100 *man* annually between 70 houses. Buchanan informs that twenty-five traders had advanced grain to the smelters in Banka. In turn the traders sold the crude iron called *bhindra* to the forgers.[44] This pattern of 'mortgage' of produce with the money lenders/traders and earnings, which were barely adequate for a livelihood, marked the lot of the Iron smelters.

---

43 Martin Montgomery, *Eastern India*, vol. III: 228.

44 *Ibid.*

In the whole district of Banka therefore the annual produce of crude iron was 9600 *man*. An iron-makers family could make about Rs.2 ¾ a month. The family also cultivated 4 or 5 *bighas* of non-irrigated high land. But the iron smelter family also had certain outlays. Each smelter paid from Rs. 1 to Rs. 1 & ¼ as rent for use of ore and charcoal and about 12 *anas* as lease for the plot of land. This land was gradually cultivated for a few years, and then left fallow as the smelters often moved out in search of new ore. Farming was an absolutely necessary ancillary occupation for the iron makers who, according to Buchanan, were very poor and were in addition "notorious drunkards".[45]

An important factor that emerges from the foregoing account of Buchanan is that the blacksmiths could not carry on production without advances. In the case of Bhagalpur in late eighteenth and nineteenth centuries merchants advanced grain to the peasants who where engaged part of the year in pig-iron casting and who handed the finished pieces of metal to the merchants in exchange for grain. The merchants distributed the metal for further processing to the village blacksmiths, to whom they also advanced money and from whom they collected forgings. They formally 'sold' the metal to the blacksmiths and then 'purchased' the forgings form them F.

---

45 *Ibid.*

Buchanan emphasised that these village blacksmiths 'never work but when they receive advances. Merchants usually sell them the crude iron, and purchase the forged, so soon as made'.[46]

The best quality iron was obtained chiefly from Monghyr. Monghyr was famous for its iron works, the best firearms and swords in India being made here. Haji Mustafa, translator of *Siyar-ul-Mutakherin*, the famous eighteenth century Persian history of India remarks - 'The European reader may possibly hear with surprise that these fire locks manufactured at Monghyr proved better than the best tower proofs sent to India for the Company use; and such was the opinion which the English officers gave them when they made the comparison by order of the Council of Calcutta[47]. Twining writes "A traveller from Europe is surprised to see presented to him for sale in the interior of India, knives and forks, saucepans, grid irons and tea kettles, which would not discredit an iron mongers shop in London"[48]. It is not surprising that Monghyr was the "Birmingham of the East".

The iron of Kharakpoor was reckoned to be the best that came to Monghyr. It was superior to that of Birbhum or Ramgar. It was forged into various forms. The iron intended for ploughshares (*phel*)

---

46 *Ibid.*, Vol. II: 265.

47 K. Dutta, *Survey of India's Social Life and Economic Conditions in the 18th Century (1707-1813)* Calcuta, 1961: 108.

48 Twining, *Travels in India*: 127-28.

was the highest priced, selling at Monghyr for (about 6 *sers* about 15 lbs) for the rupee. It was prepared for adaptation to the plough. Iron, which could be wrought again for making a hoe, hatchet or some other implement, was cheaper. It sold at about 8 *sers* or 17 ¼ lbs for the rupee.[49] We find therefore, at the higher quality of iron was used for farming implements than other articles.[50] In working into coarse goods it lost one-third, and when wrought into fine goods its lost one-half.

The smelted crude iron was subjected to forging, which was done by special blacksmiths. They all resided near the mines, and the crude iron was never sent to a distance for market. Five or six men were employed at each forge (*maruya*) which did not differ much from a common Indian blacksmith's forge. Nor was it requisite to strike the iron with a larger hammer. The hammer weighed perhaps four or five pounds. The crude iron was heated and hammered three or four times and was then fit for sale, being formed into little wedges, bars, or plates according to various purposes for which it was intended[51].

---

49 Martin Montgomery, *Eastern India*, vol. II: 264.

50 Pavlov, *Historical Premises for India's' Transition to Capitalism* (late 18th to Mid 19th Century) Moscow, 1979: 126.

51 Martin Montgomery, *Eastern India*, vol. II: 264.

Each man at the forge could make two *anas* a day. A forge with six men, could wrought daily 10 *sers* each of three kinds of iron - one fitted for plough shares, one for hoes, and one for hatchets[52]. The blacksmiths worked only on receiving advances. Merchants usually sold them the crude iron and purchased the forged, as soon as made[53].

There were a special group of urban blacksmiths who specialised in making high quality fine articles for the local market like spears, swords, matchlocks, and rude kind of cutlery. The blacksmiths at Bhagalpur, Tarapore were considered good workers, and were capable of making anything. The blacksmiths at Monghyr made goods based on European imitation. While the goods were very coarse when compared with the English work, they were also cheap and useful.

The armourers of Monghyr won particular renown. Buchanan gives a list of articles commonly made-double-barrel guns, rifles, pistols, single barrel pistols, fowling pieces, muskets, ordinary and carved match-locks, swords, spears and ramrods. The household utensils, for well to do families, included tea-kettles, fish kettles, iron oven, saucepans, frying pan, chafing irons, snuffers, *chauka angethi*

---

52 *Ibid.*

53 *Ibid.*

(kitchen stoves), forks, knives, scissors, various locks, tongs etc. The preparation of knives, scissors and razors were a rather special branch of the blacksmith's trade. We may call the blacksmith employed in this work a cutler. Equestrian equipment was also manufactured-Stirrup irons, horseshoes, and padlock. All this equipment was used by the nobility or the privileged mounted troops. Of the farming implements, there is mention by Buchanan of only "Sickles with teeth", spuds and large sickles for cutting grass and also wheel spindles which could be used for the carriages of rich people. Among other articles were nails of every kind, including cobblers nails, needles and knitting needles. Buchanan also gives the price of these articles. Five arms cost from Rs.10 to 32, sword from Rs.1 to 3, kitchen ranges Rs. 15, a fire place Rs. 125, a dozen table knives and forks from Rs 4 to 6, peasant sickles were worth much less, from one to 4 *anas*, a hundred nails 3, *anas* etc.[54]

It is obvious that both in range and in value, weapons and household articles for the richest sections predominated in the total volume of the production of Monghyr. Indeed Buchanan says explicitly that the chief articles were different kinds of firearms mostly sold to passengers and carried towards the west and teakettles and chafing dishes sent to Calcutta.[55] This explains the decline of

---

54 *Ibid*: 265-266

55 *Ibid*: 267.

Monghyr following a reduction of demand for articles of this type. Goods meant for the peasants and craftsmen could not compensate for the reduction in aristocratic consumption.[56]

The following data helps to further gain an idea of the organization and scale of manufacture in Monghyr. It had 40 blacksmiths' shops. In each shop worked two or three men, generally partners or persons of the same family. When anyone received a large order, he hired his neighbours. A common labourer got 2 *anas* per day, and a skillful workman was allowed 3 *anas*. There were 13 gun makers' shops and 700 to 800 guns were produced annually.[57] Thus in Monghyr, the well known metal working centre, also housing a specialized class of workers-the gun makers - there remained slightly more than 100 artisans, who led a very modest existence, offering no opportunities at all for accumulation. The modest scale of manufacture was further reflected in the technology employed, which remained rudimentary. The barrels of firearms were made by twisting a rod round a iron spindle, then hammering it together. The bore was afterwards polished and enlarged by bores of different sizes. The teakettles were made in sundry pieces united by soldering. The

---

56 Pavlov, *India's Transition to Capitalism*: 126.

57 T.N. Mukharji, A Monograph: 334.

workmen adopted the European bellows. The European of the regiments formerly in garrison introduced these improvements.[58]

Buchanan reported that at Monghyr was a house of *koftgurs*, who plated iron teakettle, and inlay gun barrels, sword blades or spear with gold or silver. At Bhagalpur were two houses of needle workers, who lived, entirely by this profession. They had not yet acquired that art of forming the eye after the European manner, but merely made a hole through the thick end so that the thread passed with difficulty through the cloth.[59]

The preparation and the inlaying of *bidri*-ware was the most interesting metal craft of Bihar, concentrated entirely in Purnea. According to Hunter's Report there were only four families of *bidri* workers concentrated in the village of Bellori in Purnea.[60] The *bidri* craft was marked by an intrinsic merit of the articles produced and the dexterity of the artisans. However, this craft has now completely died out from the district. The name *bidri* was given to the ware, because the industry was introduced from Bidar in the Deccan.[61]

---

58 T.N. Mukharji, A Monograph: 55

59 Martin Montgomery, *Eastern India*, vol. III: 262-66.

60 W.W. Hunter, *A Statistical Account of Purnea*, vol. XV: 355.

61 L.S.S.O' Malley, *Bengal District Gazetteers*, (*Purnea*) Calcutta, 1911: 117.

Bidri was prepared by members of the *kansari* caste. However, the inlaying and polishing of *bidri* was carried on by members of other castes, such as *sonars, dhanuks, sunris*[62].

The manufacture of the ware was through a highly a specialized subdivision of labour. The workmen were usually divided into three classes and sometimes into four. One set of workers melted and cast the metal; another turned it in a lathe to complete the shape which was usually of the ordinary *Suraha* or water vessel or of a *hookah* stand; a third set of workers traced the figures and other designs on the work, inlaid the work with silver and a fourth worker give it a final polish and stained the metal black. This was done in order to show the inlaid figures to advantage and to conceal the tarnish, which in time the metal would acquire. The same set of workmen would often finish both the last operations.[63]

The main component part of the *bidri* was the metal termed as *justah* or *jasta* by the natives of the Purnea district. It was imported by sea from China. It was identical with the *dista* or *dasta* of Bengal or relatively pure Zinc. The other ingredients used in *bidri* were

---

62 Martin Montgomery, *Eastern India, vol. III:* 320; Buchanan, *Purnea:* 533; W.W. Hunter, *A Statistical Account of Purnea,* vol. XV: 356.

63 Martin Montgomery, *Eastern India,* vol. III: 320; Hunter, *A Statistical Account of Purnea:* 355.

copper *(tumba)* and lead. Buchanan reports that the compound metal contained no iron.[64]

Buchanan gives an account of the process of manufacture of *bidri*.[65] The workmen took 12,360 grains of *justah*, 460 grains of copper, and 414 grains of lead. The greater part of the *justah* was put in one earthen crucible. The lead, copper and a small quantity of *justah* was put in a second, but smaller crucible. The crucible was covered with a cap of kneaded clay, in which a small perforation was made. Both the crucibles were coated outside and inside with cow dung. The crucibles were put in a small pit filled and covered with cakes of kindled dry cow dung. When the metals were adequately fused, the contents of the small crucible were poured into the larger crucible, where the surface of the melted matter was covered with yellow scoriae. In order to prevent calcination the workmen threw into the crucible a mixture of resin and bees wax. The fire was again piled round the larger crucible and in a few minutes the two metals united and were passed into a mould formed of baked clay. When the *bidri* had cooled, the work was delivered to men who would complete

---

64 Martin Montgomery, *Eastern Indian, vol. III:* 320

65 *Ibid.*; A description of the process of manufacture of *Bidri* is also given in R.J. Hirst 'A Note on the *Bidri* ware of Purnea'. *Proceedings of the Asiatic Society of Bengal*, July, 1907; Other accounts are found in George Watt, *Indian Arts at Delhi*: 46-47, J.C.M. Birdwood, *Industrial Arts of India, London, 1980*:146.

the shape. He did this with the help of hired labour who worked the lathe.

The vessel next passed to another set of workmen who inlaid flowers and other ornaments usually of silver. These artists first rubbed the *bidri* with blue vitriol (Super sulphate of copper or *tutia*) and water which gave its surface a black colour. However this was not fixed and was removed by washing. This process was intended to enable the designer to distinguish more ably the figures that he traced. He did the tracing and designing with a sharp pointed instrument of steel. Mistakes in designing could be readily effaced with water and a second application of the sulphate of copper, but such mistakes were rare. Having traced the figure, the workmen cut it out with small chisels of various shapes, and then with a hammer and punch, filled the cavities with small plates of silver, which adhered firmly to the *bidri*. No adhesive of any kind was employed.

The work was completed either by the same men or by another set of workers. A final polish was given to the whole by rubbing it first with cakes made of shell lac and powdered corundum and then with a piece of charcoal. When the polish had been completed, a permanent black stain was given to the *bidri* by the application of a paste formed of four parts of Sal ammoniac, one of unrefined nitre and of freshly collected rough saline earth procured form old mud walls (saltpetre).

The *bidri* was smeared with this paste which was allowed to remain for four days. It was also rubbed with a little rape seed oil to which powdered charcoal had been added. It was then washed away and the *bidri* became of a fine black colour, which was not affected by water, and was not liable to rust. It did not dint under the blows of the hammer, but broke into pieces when violently beaten. However, it was far from being brittle. It was not as fusible as tin or *justab* or zinc, but would melt more readily than copper. *Bidri* ware was of two kind: the best was called *garkhi,* which was marked by very good workmanship; the second was called *karna bidri,* the designing on which was of a much plainer description, and the furnish inferior.

The articles made of *bidri* for which there was common demand were various parts of the implement used for smoking tobacco (*hookah* stands), and spitting pots. Many other articles like *surahis* (Water vessel), *sarposhes* (Semi circular cover of a *chilam*) etc. were made, when commissioned.

The melters and turners involved in manufacture of *bidri* made poor wages, the inlayers and polishers received high pay. The goods were usually made entirely by the people, who also sold them, and who hired the workmen from day to day.[96] The price of the finished article varied with the thickness of the silver leaf employed. In the

---

[96] Martin Montgomery, *Eastern India,* vol. II: 321

cheapest kind of work the roughness of the *bidri* could be seen through the inlaid leaf, and the definition was not so sharp as in higher grades. In the latter the silver presented a very smooth, highly polished surface.[67]

The growth and development of mining and metallurgical process in seventeenth and eighteenth century Bihar and its impact in ushering in a metal craft for household, agricultural implements and articles of decoration is incredible. A few conclusions emerge from the above survey relating to the metalworking artisans. First, metal working on gold, copper, brass and *bidri* was marked by intense specialization. Thus for making gold and silver wire three sets of workmen were employed. The *tarkush* formed the precious metal into coarse wire, having previously gilded the ingot. The *taniya* drew the wire to the requisite finesses. The *chapriya* flattened the wire with a single blow from the hammer. The wire in this form was called the *badla* and was widely exported for manufacture into silver lace and for embroidery or for making cloth of gold and silver.[68]

Second, one becomes aware of the rural base of the metal craftsmen, specially the blacksmith, his social-economic constraints

---

67 L.S.S. O' Malley, *Bengal District Gazetteers (Purnea)*: 119

68 F. Buchanan, *Patna-Gaya*: 642; W.W. Hunter, *Statistical Account of Patna District*: 143.

as well as his capacity to utilize the maximum of the primitive technology at his disposal. The most common type of blacksmith, the man who had not specialized in any branch of his trade-required next to no tools or outfit. He had his hearth, and bellows to supply a blast to the fire. He also had an anvil, a few pairs of tongs or pincers and a few hammers. A cold chisel would complete his most slender equipment. His work was entirely carried on in a small shanty.[69] While the weaver could easily move with his loom to urban centres in response to commercial demands, the metal working craft was supplied by "subsistence smelter" who could not even afford to pay transportation charges for the ore and was confined to the ore and fuel sites. They could not also be expected to innovate larger, less portable, costlier and more efficient furnaces. This explains why the blast furnace and consequently the cast-iron were virtually missing in sixteenth to eighteenth century India. The lack of investment capital with the smelters and forgers and the low rates of profit were major factors in preventing the development of technology. Buchanan fails to mention any technological innovation apart from open pit mines, small clay furnaces and primitive bellows unable to liquefy iron resulting in a low percentage of extraction.[70]

---

69 T.N. Mukharji; Monograph: 331.

70 The socio-economic constraints have been discussed by Tapan Ray Chaudhuri, 'Non Agricultural Production', *Cambridge Economic History of India*, vol. I: 284-286, 320ff.

Within the blacksmiths and the goldsmiths the division of labour for commodity production was maturing. The blacksmiths in rural areas were not only village community artisans. They bought from merchants' ignots of low quality of iron and forged them into special planks for the production of ploughshares, hoes, axes and other tools. Similarly goldsmiths were small commodity producers who for a payment produce all sorts of ornaments for women and retailed on market expensive metal household wares, as also images of gods.[71]

Third, the metal ware sector of craft catered essentially for the ruling class. The urban and rural aristocracy constituted an unlimited demand for luxury, military and building hardware. The latter however was confined to nuts clamps, bolts and items of decoration. This itself proved to be counter productive since it led to an excessive utilization of skill and resources on a few luxury items at the cost of socially relevant product. It could neither inculcate cost effectiveness nor increased production nor labour saving devices.[72] The metal industry with its potential for inducing urban growth and hence a consequent increase in demand for metal ware, continued to remain largely rural in character.

---

71 Martin Montgomery, *Eastern India*, Vol. II: 260-261.

72 Iqbal Ghani Khan, 'Metallurgy in Medieval India 16th to 18th Centuries': in *'Technology in Ancient and Medieval India'*: 85; see also, Irfan Habib, 'Social Barriers to Technological Change'. *I.H.R*, vol. V, No. 1-2: 167-174.

CHAPTER VII

CRAFT PRODUCTION SYSTEM, MARKETING AND FINANCING PATTERNS

The expressions 'Craft' and 'Industry' need to be specified and defined. A 'Craft' may be taken, quite literally, as an occupation in which the quality of the article produced is dependent, to a large extent, upon normal skill, mastery and dexterity, rather than on the kind of tools in usage or the organizational practices in vogue. The term 'industry' pre-supposes the cognizance of certain other point of reference. There has to be some degree of basic uniformity in the product produced. The existence of a large production unit with a sound economic base, an infrastructure for the supply of ancillary goods and services is taken for granted. A necessary outcome is a higher outlay in monetary terms. A craft can be practiced quite satisfactorily in the domestic situation, within the confines of a closed village economy. However, the operation of an industry necessarily leads to a degree of differentiation in skill and occupation, and is linked with outlets to a wider market.[1]

---

1 Lotika Vardarajan, 'Impact of European Traders on Indian Handicrafts and Industries' *Indica*, vol. 16, No. 1-2, 1979: 213; Mita Das, Ashok Ghosh, Ranjana Ray, 'Change in Traditional Industry: A Case Study of Potters,' *Man and Life*, vol. 7, July-Dec. 1981, Nos. 3-4: 152.

The production and organization of the crafts of Bihar, in the seventeenth and eighteenth centuries, specially the textiles, represented this dual aspect and could well be fitted into either of the two categories - 'Craft' and 'Industry'. The domestic market, viewed in terms of the consumption of essentially non-luxury items, was localized in scale and was fed largely by products manufactured in the craft sector. Where textiles formed an item in the external trade, if the element of presentation were left aside, it could be accommodated better within the term 'industry' although the handicraft aspect still constituted an important element, viewed from the angle of technique of manufacture.[2]

In other words, the craft production of Bihar in seventeenth and eighteenth centuries, demonstrated widely varied forms of economic organisation, all of which were integrated into the macro system of the economy. It had acquired a complex and specialized character in response to the nature of its trade. It had evolved a definite hierarchy of work. It drew various levels of society into diverse forms of economic activity. It was linked to an expanding and multi-tiered marketing system.[3] The craft manufacturing sector in Bihar was thus marked by variety, vigour, and a large volume of aggregate output.

---

2 Lotika Vardarajan, *Impact of European Traders*: 213.

3 Compare, Hameeda Hossain, 'The Alienation of Weavers: Input of the conflict between the Revenue and Commercial Interests of the East India Company, 1750-1800' in Tirthankar Roy (ed.), *Cloth and Commerce: Textiles in Colonial India*, 1996.

The craft manufacturing work in Bihar in the seventeenth and eighteenth centuries was marked by highly specialized technical skills combined with low production costs. The observation of Stavorinus on Bengal may very well apply to Bihar "Artificiers confine themselves to one single work... a gold smith will not work in silver, nor a silversmith in gold. In the *aurangs* or looms, a weaver will only weave one single sort of stuff during the whole life unless he be compelled to take another in hand."[4]

There was minute differentiation of function based on a distinct division of labour. The weaving of fine cotton or silk, for example, was not merely a question of assembling the necessary raw materials and setting the unemployed poor to work. The cotton and silk industry, in addition called for an empirical knowledge of minute details like the preparation and treatment of thread which was a key element in the successful manufacture of finer types of cotton and silk textiles and often required as much time as the actual process of weaving itself.[5] Similarly the highly evolved dye fixing technique which required a fairly complex series of chemical treatment of the cloth 'painted' with multicoloured patterns, was based on an empirical and hereditary

---

4 Stavorinus, *Voyage to the East Indies*, vol. I: 474.

5 K.N. Chaudhari, 'The Structure of Indian Textile Industry in the Seventeenth and Eighteenth Centuries', *Indian Economic Social History Review*, (hereafter *IESHR*) vol. II, June-Sept, 1974: 1-14: 129.

knowledge of the physical properties of the various kinds of dyes used.[6]

Production depended on manual dexterity rather than technological innovations and an artisan had to undergo a lengthy training period as an apprentice. The consequent proficiency of the craftsmen, compensated for the simple techniques and minimal capital inputs into the craft sector. When the European Companies exerted pressure for expansion of production, the system sought to reach the required level of output by drawing in surplus labour. It would seem that this surplus labour was seeking employment in the production of coarse fabrics. The weaver's well entrenched in their professions and technical knowledge confined themselves to the production of finer fabrics.

Buchanan's report on metalworking is an adequate comment on the great extent of specialization in the crafts of Bihar. He reports that in Purnea while the blacksmiths had, taken over from the carpenters in making farm implements, the carpenters were left to making simple house hold furnitures, boats and carts. Buchanan notes that most of the carpenters were also turners, which enabled them to make spinning wheels and boats, the most indispensable product of the turner's lathe. Thus having been deprived of orders for

---

6 *Ibid,:* 181

the farming implements, local carpenters switched to making of carpenter's goods, means of transport and most important, tools for spinners and perhaps other artisans as well. However, the removal of farming implements from their sphere of production led to a decline in the social status of the carpenters of Bengal and Bihar, and some of them were considered to be "impure".[7]

The high degree of specialization, minute differentiation of function based on a distinct division of labour, also led to a pronounced interdependence between different sectors of production specially among those craftsmen who were catering for distant markets – urban, inter regional or overseas. While, the *Jogi* or low caste weaver who wove coarse cloth of the ordinary cloth for the local *hat* could complete his article of manufacture within his family unit, the manufacture of *Khes* required the attendance of atleast three men—one for pulling the thread to form the pattern, another for twisting the thread and the third to weave. Thus the number of men required for the outturn of each piece could be either one, or two or three depending on the variety.

The intense specialization characterizing the system of production can be gleaned from the following table—

---

[7] F. Buchanan, *Purnea*: 529-31, 221.

COTTON TEXTILES

(i) Cotton cleaning – *Dhuniyas*

(ii) Spinning of Cotton – Women of all castes

(iii) Dyers – *Rangrez*

(iv) *Nilgur* or dyers with indigo

(v) *Achfurosh* or dyers of cotton thread with *morinda.*

(vi) Weavers of cotton cloth

(vii) Weavers who work in Tasar silk mixed with cotton thread

(viii) Washing and Bleaching – *Dhobis.*

(ix) *Kundikor* who betle bleached cloth

(x) *Parchakush* or *Andiya* who smoothened fine cloth with needle

(xi) *Kangghaigur*

(xii) *Kangnikar* who put gold and silver thread in fine cloth.

(xiii) *Butabanwaiya* woman

(xiv) *Chhapagar* or *Bushmasaz* who printed gold and silver flowerings

(xv) *Chintz* makers

(xvi) *Tashbinar* were weavers of cloth of gold and silver

(xvii) *Gotasaz* who weave gold silver lace

(xviii) *Batwaiya* or *Kalabatu* makers of gold lace strings

(xix) *Patwars*

(xx) *Nakads* who twisted and winded silk thread.

METALLURGY AND CARPENTRY

(1) *Lohar* or *Barhai* who made whole implements of agriculture and coarse, wooden furniture.

(2) Carpenter who only made finer furniture

(3) Carpenters who only made the wooden parts of the implements of agriculture, coarse furniture and boats.

(4) Gold smith

(5) *Kasera* or *Thathera* who made vessels of copper, brass and bell metal.

(6) *Bidri wala*

(7) *Rangdhaluya* who worked in tin

(8) *Kalaigur* who made tin, copper and brass vessels

(9) *Kol* who smelted iron

(10) *Lohar* or blacksmiths who made the iron work of the implements of agriculture or coarse work for country use and forged crude iron.

(11) Blacksmiths who made finer work.

(12) *Koftgurs* or inlayers and platers.

(13) Needle maker or *Sui walahs*.

(14) Culters or *Sangurs*

(15) *Sikulgura* or armourers

The dominant and basic mode of craft production in seventeenth and eighteenth century Bihar was the family based small work unit and the crafts were primarily organised on a domestic basis. There was a clear division of labour between man and woman and there are references to the children and family helping in the production. The artisans home was the typical 'workshop'. Given the rudimentary character of the techniques of production with emphasis on simple instruments, the fixed capital requirements were minimal in the

individual units of production. European observers often commented on the simplicity and even crude appearance of the looms used in India and in all calculations of cost there is not a single reference to the capital value of looms. The working capital was provided from the surplus over the craftsman's consumption needs, or the advances received from the brokers. The tiny family workshops were countless in number and grouped in clusters. They included the village blacksmiths working in the open air, with his assistants, the shoemakers, the weavers, carpenters, and dyers.

In a sense the term 'workshop' is a misnomer. There was no 'plant' worth speaking of. The structure in which work was done was, often enough, the backyard of the craftsmen's dwelling house. Production was carried on by them with their own tools and equipments on an individual basis. When the craftsman decided to shift his 'workshop' from one place to another, he simply had to take along a bag of tools and his family, which assisted as workmen, and he was ready to get on with the job anywhere for, kilns, furnaces, forges and looms could always be built anew.

Village being the basic unit of social and economic organisation, a major mode of craft production was directed to supplying the needs of the peasants and the village communities. In this mode, the position of the craftsmen was that of a servant of the village

community. The productive activity of the rural craftsmen, serving the village community and supplying local needs, was not meant for commodity production, based on a competitive principle and cash exchange. Instead it was meant for the maintenance of the community life of the village as a whole. These craftsmen lived in the village and offered set products and services, contributed to agricultural production and also played an important role on the occasions of social and religious ceremonies. In return for these services, they were given a fixed remuneration in kind.[8] The latter was usually a part of the harvest. A few of the craftsmen may even have got some rent-free land in *inam*.

These village craftsmen were tied by a whole set of economic and social relations to the locality. The role, duties and obligations of these craftsman were ensured by custom, convention, usage, social and economic compulsions. They were bound by vertical ties of every kind, ranging from the formal and elaborate pattern of *jajmani* relations to the informal and variable relations between 'patron' and 'client'.[9] These artisans mainly included the blacksmiths, carpenters, tanners and the potters.

---

8 Irfan Habib, 'Potentialities of Capitalist Development': 41.

9 Andre Beteille, 'The Indian Village: Past and Present': 133, in EJ.Hobsbawn, Witold Kula, Ashok Mitra, K.N. Raj, Ignancy Sacks (eds.), *Peasants in History:, Essays in honour of Daniel Thorner.*

The principle behind the *jajmani* system has been explained by sociologists. First, it makes use of hereditary personal relationships to express the division of labour: each family has a family of specialists at its disposal for each specialized task. Secondly, it regulates presentations and counter presentations in a way which accords with custom; for the usual tasks, repayment is in kind; it is not made individually for each particular presentation but is spread over the whole year, as is natural for a permanent relationship in an agricultural setting; a little food may be provided each day, and there is always the right to a fixed quantity of grains at harvest time, and finally there are obligatory presents (often of money) on the occasion of the main festivals of the year and, above all, at the major family ceremonies, which are advantageous occasions for the *praja* of the house. A fact which underlines the limited but effective solidarity between *jajman* and *praja* is that those who are considered the main servants of the village enjoy a gift of land from the communal funds which are at the disposal of their patrons collectively'.[10]

---

10 Louis Dumont, *Homo Hierarchieus*. Chicago, 1970: 98-99. Also see, T.N. Madan, 'Social Organisation', in V.B. Singh, (ed.), *Economic History of India 1857-1957,* Bombay, 1975: 74-5; Girish Mishra, Braj Kumar Pandey, *Sociology and Economics of Castcism in India: A Study of Bihar,* Delhi, 1996: 9; Deepak Lal, *The Hindu Equilibrium,* vol. I, Oxford, 1988: 48-50.

Buchanan points out that the blacksmiths and carpenters in Bhagalpur[11] and Patna[12] who were involved in the making of agricultural implements were usually paid for their labour in grain and were often entitled to a certain share of the crop. They also formed a regular part of the establishment on each estate. About the *Chamars* of Shahabad, Buchanan states that they mostly belonged to the "manorial establishment and are paid by a share of the crop for furnishing ropes, bags for drawing water and shoes for the Ploughmen".[13] Buchanan was obviously using the word "estate" according to the existing British terminology, implying a whole multitude of villages and land comprising the *zamindar* estate.

It is clear that the peasants and craftsmen were closely integrated by a system of economic as well as ritual interdependence. A case study of the potters would adequately exemplify this assertion.[14] Pottery was essentially a rural craft, which was mainly designed to serve the immediate consumption, ceremonial and ritual

---

11 F. Buchanan, *Bhagalpur:* 601

12 F. Buchanan, *Bihar and Patna*. vol. II: 39.

13 F. Buchanan, *Shahabad*: 364.

14 Campare, Baidyanath Saraswati, 'Caste, Craft and Change', *Man in India*, vol. 43, No 3, Ranchi, 1963; Pradip Kumar Bose, 'Production Organisation and Market Relations of Potters of Gujarat',. *Man in India*, vol. 62, No.3, Ranchi, September 1982; Ranjana Das, G.S. Ray, 'Potters Craft in a Village in West Bengal'. *Bulletin of the Cultural Research Institute, vol. V, No. 102. 1966.*

requirements of the residents of the village, including the potter's family. This craft thus remained relatively insulated from the wider market forces. The potters were usually assigned a small piece of land, often rent free or at a reduced rental, in exchange for their services. They also received, as a retainee, a share of the produce of the cultivators whom they served. The potter would also enter into *jajmani* relations with various occupational castes. He would deliver earthen vessels to the peasants, carpenters, blacksmiths and barbers and in return get clay or grains from the peasants, once or twice a year during harvests; implements from the carpenters; blacksmiths would repair their iron implements, and the barbers would undertake hair cutting and shaving of all the members of the potters family. The potter would also enter into market relations, when he sold his wares in market.

The pottery production was family and kin based where the recruitment of outside labour was almost negligible or only marginal. The members of the family participated in various processes of labour which was systematized, sex based and even ritualistic. Generally, the female performed the lighter kind of work like kneading, sifting and grinding of clay and colouring the pots. The men performed the strenuous and major part of the work like digging and carrying of clay, modeling, beating and firing. There was generally a ritualistic taboo, which prohibited the women from engaging themselves in any kind of work involving the potter's wheel.

The ritual and socio-economic interdependence between peasants and craftsmen is further validated by a case study of the craft groups in the Chotanagpur villages. In Chotanagpur, the settled agriculturists like the *Oroans* and the *Mundas* depended upon the *bom loha* (heavy iron) which was indigenously manufactured at the *bhatti* or an iron-smelting furnace of the *Asurs.* The *Lohars* or the blacksmiths used the *Asur* smelted *bom loha* for their manufactures. The *Asurs* also acted as the village blacksmiths and manufactured as well as mended agricultural tools, implements and household fittings required by the peasants. Similarly the *Chick Baraik*, or the cotton weaver, manufactured cloth with the *hatha* (a traditional type of loom) for domestic and ceremonial use. They even prepared both coloured and simple varieties of yarn. Till today, the *Sangalparia* variety of cloth made by the *Chick Baraik* is absolutely necessary for the solemnization of marriage ceremonies. Likewise a few yards of the *Chick Baraik's* yarn is essential in the name giving ceremony and worshiping of *Dom Mai* (the village deity in charge of village welfare). Further their presence in life crises, namely in birth and death, is also mandatory.[15]

An important issue, which needs to be analyzed, is the relation between the village crafts and agriculture. Despite a high degree of

---

15 Bhabesh Chakroborty, 'Vanishing Crafts of the Artisans of Chotanagpur', *Bulletin of the Cultural Research Institute*, Vol. IX, No. 3-4, 1972.

occupational specialization on a hereditary basis, Bihar too was marked by a characteristic common to all agrarian societies: the line of demarcation between agriculture and manufacturing activities was not always clear. The peasants were involved in the manufacture of a range of commodities. At times craft was an additional calling of the agricultural families during lean agricultural periods. Thus women of all castes did cotton spinning and similar other handicrafts ancillary to agriculture. Home spinning was done with the use of cotton cultivated in the same peasant household or partly connected with the market through the purchase of cotton and selling of surplus threads. Thus wives of peasants were spinning for sale which gave the family an additional income. Similarly the specialist rural craft groups were, at times, also making a living from agriculture. Indeed land was the most valued reward for any kind of service. The rural artisans, as hereditary servants of the village community, were often enlisted by the peasant for auxiliary agricultural work. The shift of the weavers, blacksmiths and other craftsmen from their artisanal pursuits to agricultural work was a part of the rhythm of the normal work year. This used to be a large and singular phenomenon when there was a serious decline in demand. The participation of craftsmen in agriculture was elaborately graded. While the scriptures and local customs allowed both the Brahmans as well as tanner, weaver, potter, carpenter etc. to make a living from agriculture, the craftsmen could only do manual work either on their own land or on land not owned or

controlled by them. Thus there were strict limits beyond which the craftsmen could interchange their economic role in the village. Conclusively, the manufacturing production was not separated from agriculture.

While it is undeniable that service relationships, sharing of the grain heap and payment of craft services in terms of a piece of land existed, it needs to be emphasized that the concept of the self sufficient village stands invalidated. There is plenty of evidence to suggest the growing social division of labour, the separation of crafts from agriculture, the increasing linkage of the peasant-craftsmen with the market and their transformation into small-scale commodity producers. It seems that the manufacture of cloth, which was the most common consumer product of the craft sector, had been dropped out of the system of village community production. It is important to note that Buchanan, while discussing the different emoluments for community artisans says nothing about weavers being provided with maintenance in kind. In Bhagalpur, small merchants sold cotton to the women who would spin and sell their thread to the weavers.[16] It would seem that the spinning of the cotton thread and the winding of the cocoons by the women in the weavers' families were insufficient and the weavers had to buy the thread

16 Martin Montgomery, *Eastern India, vol.* III: 329.

frequently from the market.[17] In Purnea district the village weavers bought a large part of their yarn for cash and sold their products in the market each week.[18] A small part of the coarse quality fabrics being produced in the peasant families of low caste were sold in the market. Owing to the increased demand for cloth, some members of the peasants' families belonging to other castes also took weaving of cloth for the market.[19] The numbers of the professional spinners producing thread for the market was quite large in the late eighteenth and early nineteenth centuries. This inspite of the decline of the crafts during the period. For example in the district of Bhagalpur, which had a population of over 2 million, there were 169,000 cotton spinners, 7,500 weavers, about 1,500 carpenters and 500 blacksmiths, most of who were producing agricultural implements in villages.[20] At the beginning of the seventeenth century in large town's like Patna the weavers comprised the numerous army of artisan-commodity producers. Robert Hughes noted that the population of villages (*gonges, ganj,* which meant village settlement) around the town of Lakhawar consisted in the 1620's mainly of weavers who produced a special fabric, *ambarti.*[21] Peter Mundy who visited these places ten years later wrote that the merchants in these district 'go gathering of

---

17 W.Foster, *EFI,* 1618-21: 192-195.

18 *Ibid:* 324-328; also vol.II: 252-261.

19 *Ibid,* vol. III: 329.

20 *Ibid,* vol. II: 1,6,7.

21 W.Foster, *EFI,* 1618-21: 192.

it (cloth) buy little to little from town to town...'. The weavers of Lakhawar and Patna also took their *ambarti* cloth to the local market themselves and this was 'the usual custom of buying the ambarti calicoes' in these towns.[22] Besides the weavers who sold their cloth, craftsmen, such as the manufactures of brass and bell metal utensils went from village to village, to buy materials and sell their metal wares. By the end of the eighteenth century, the peasants in iron rich areas between Dumka and Bhagalpur were engaged for five months in a year in the mining of ore, the production of charcoal and the smelting of iron, in primitive furnaces. The entire peasant family participated in the business. The ore, which was of a very low quality, was usually delivered to the merchant in exchange for grain. Gradually, part of the peasants' became professional smelters, who engaged in the trade '20 days a month throughout the year'.[23]

It would appear that by the seventeenth century, exchange had made sufficient inroads into the subsistence-oriented system of manufacture by collectively maintained artisans. Both the rural artisans bound to the village community as well as the peasant manufactures were also responding and catering to a large and expanding market. The agro-manufactures like indigo, salt petre, raw silk and cotton yarn, which figured in external trade, were products of peasant household. While the production of silk in its finished form

---

22 Peter Mundy, *Travels*, vol.II: 145.

23 Martin Montgomery, *Eastern India*, vol.II: 261-263

was a highly specialized activity, all the earlier stages in the production processes from mulberry and tasar cultivation, to the winding of cocoon, were undertaken by the same peasant castes. This was despite the differentiation of each process as a distinct occupation. Salt and saltpetre production were also part time peasant activities, though these too had a specialized caste–*Nunias*–exclusively concerned with the manufacture of saltpetre. Buchanan's account of iron smelting and charcoal production, as part-time peasant activities, in the late eighteenth century Bihar is a further pointer.

However, it should also not be adduced that the traditional system of intra-community bonds was facing dissolution or disruption through the operation of market forces. Craftsman like potters, oil pressers, tanners and blacksmiths were perhaps combining their customary service obligation to the village community with production for the market also, while other artisans like weavers were catering to the market alone. Moreover, village life to a large extent was still characterized by immobility. Few thought of leaving the villages so long as the economic and social conditions did not force a big chunk of village population to migrate to some other places.[24]

---

[24] As late as 1921, it was reported that only one in four males and less than one in ten females of the rural tracts had visited Patna, Calcutta, Gaya or Puri. An inquiry conducted during 1918-1920, revealed that on the average, during each month, in South Bihar only one person in eleven, in North Bihar one in thirteen and in Chota Nagpur one in thirty-one under took a railway journey. P.C. Tallents, *Census of India, 1921*, Vol.VII, Part I, Patna, 1922: 3-4.

The craft commodities moved in the rural-urban direction and between rural localities through a hierarchy of markets-*hats, gang* and *mandis,* linked by a specialized community of merchants, *.mahajans and sarrafs* who controlled the flow of credit. Most of the local exchanges and buying of commodities were done at the periodic markets or *hats* or *penths*, which were held weekly, or biweekly on fixed days. Such *hats* were held even during the fourteenth and fifteenth centuries.[25] There were separate *hats* for different commodities with well established trading regulations.[26] These *hats* appear to have largely fulfilled the requirements of the rural areas. The regional archives of Bihar points to the prevalence of the *Mahals* or commercial centers within the *parganas* in Bihar. These *Mahals* served as markets or *Mandis.* In these *Mandis* the rural population of adjacent villages could sell their surplus agricultural and craft goods for regional consumption as well as export to the main cities. Similarly, the rural population could purchase from these *Mandis* such commodities not available locally and which were imported from other *Mandis* of the cities. *Mahals* also served as links between

---

25 Indrakant Jha, *Chaudhevin – 'Pandrehavin Shatabdi Mein Mithila Ka Vyapar, JOBRS,* 1968, vol. 5, Pt1-4: 385-86; cited in, Ahmad Raza Khan, *A Brief Survey of Trade and Commerce during Bihar during the Seventeenth Century*: 473.

26 R.K. Chaudhary, *Mithila in the Age of Vidyapati*, 1976: 196.

villages and *Qasbas*. The *Qasbas* apart from saving as administrative headquarters of the *Parganas* were also the main commercial center of the rural areas.[27] Sale and exchange of goods was also through periodical fairs which could be religious or cultural fairs. The chief means of intercourse between the two districts of Bhagalpur and Purnea was the fair held on the banks of Ganges. Cattle and other manufactured goods were sold here.[28] Two large fairs were held in Purnea in the month of November and February.[29] Two fairs were also held in Hazaribagh.[30]

A specialized community of merchants were engaged in the movement of the craft commodities form the craftsmen to the market. The *Buzaz* retailed cloth and also engaged in import and export. They had shops and a capital, which varied from Rs. 20 to Rs 5000. The prosperous *Buzaz* of Patna posessed a considered amount of capital ranging from Rs. 19000 to Rs. 50,000. A few *Buzaz* hawked about the streets retailing silk, cotton and woolen cloth. In Gaya a few *Buzaz*

---

27 *Mahals* as commercial centres are cited in *Farhrist - i – tappajat, Pargana* Bhagalpur, dated Fasli AD 1179/1771, Secretariat, Central Record Office, Patna. These documents are attached to the *Raqbabandi* document of Akbar's reign, cited in B.K. Grover, 'An Integrated Pattern of Commercial life in Rural Society of North India during the Seventeenth and Eighteenth Centuries' in Sanjay Subramanyan (ed.), *Money and Markets in India 1100-1700:* 223.

28 Martin Montgomery, *Eastern India*. vol. II: 338.

29 W.W. Hunter, *A Statistical Account of Purniah:* 371.

30 W.W. Hunter, *A Statistical Account of Hazaribagh:*

even retailed brass and bell metal vessels.[31] Some *sarrafs* dealt not only in precious metals and coins but also cotton cloth. In Patna there were dealers in cloth who had set 22 factories called *Parchuniya Kothis* for purchasing and bleaching muslin and calicoes.[32] A lot of the calicoes were made into *chintz*. They also dealt in silk, both pure and tasar, woolens such as *lui* blankets and carpets. The *Lohar Dokandars* or *Furosh* of Patna purchased iron in considerable quantities from traders who brought iron from Ramgarh. They had a capital of Rs. 1000. The *Lohasaz* retailed a variety of iron wares, chiefly nails, hinges, locks, pots and chains. They had capital of Rs.200 to Rs. 500 and were confined to Patna. In areas out side Patna the iron wares were sold by the makers. In rural areas most of the brass and bell metal vessels were retailed by those who made or repaired them. However in Patna some *Paikars* advanced money to the coppersmiths and retailed their goods and also purchased goods imported from Kangtoya. Two of these *Paikers* were rich with a capital of Rs. 500 to Rs. 600 while others had a capital as small as Rs 1000 to Rs. 500. A few cloth shops in Gaya also retailed brass vessels.[33] The potters disposed most of their own ware but the *Hangri furosh* and *Bharchariyas* made a living by retailing pots. The *Sorahiwalahs* sold earthen bottles and pots for cooling water and earthen vessels painted with porcelain clay, though the makers also retailed the same

---

31 Martin Montgomery, *Eastern India*, vol. I: 373.

32 *ibid*: 368.

33 *ibid*: 374-375

goods. The *Parchuniyas* with a capital of Rs 100 to RS.2000 retailed flattened wire (*Badla*), leaf, thread, lace and cloth of gold or silver, pearls and carols.[34] The *Chirawalahs* hawked turbans in the street, which they purchased from weavers and had a capital from Rs.10 to Rs. 30. There were two houses in Patna dealing in shoes. They had a considerable capital and the title of *Mahajan* although their profession was degrading.[35]

This brings us to the second category of craft organisation – that of commodity production. Irfan Habib has divided this into two, more or less distinct parts. In one, the artisan produced the goods on his own account. He decided unilaterally when, how much, and what kind of goods to make. He was the master of his produce until he himself sold it in the market.[36] He was independent of the merchant and the merchant capital. An example of this mode of production can be cited from a series of letter written by the English Factor Robert Hughes from Patna in 1620. He pointed out that the *amberty* calicoe of Lakhawar was daily bought to the market of Lakhawar by the weavers from the neighbouring villages and sold mostly in a raw state (i.e. without being "whited" and starched). The price paid to the weavers for the unbleached cloth was fixed by the current market

---

34 *ibid*: 372-378

35 *ibid*: 525.

36 Irfan Habib, 'Potentialities of Capitalist Development': 42.

price of the finished product, less a discount (*Dasturi*, Commission) of 25 percent. In this way, fifty or sixty and some days hundred pieces were brought to the market by the weavers. After purchase the buyer delivered the raw cloth to the bleachers who took three months to wash and starch it and charged Rs. 3 per 20 pieces. The weavers also sold cloth in Patna, which was already 'whited and cured'.[37]

In the above case the weavers were producing the calicoes themselves, on their own account, in anticipation of the demand. They were striving to minimize their financial outlays and risks by selling the unbleached cloth to the wholesale dealer who arranged the final stage of finishing.[38] The weavers even sometimes enlarged their "investment" by having their product "cured" by washers. This process took three months and cost Rs. 3 for 20 pieces. Weavers who arranged for such processing themselves must have been able to sell their wares dearer on the large-market. Enrichment through such ventures might in time have enabled some weavers to expand their production by no longer confining it to the household but engaging apprentices and servants. However, there is little evidence in Bihar of such a development in general. In the various crafts, there were only few independent master craftsmen of any substance.

---

37 W. Foster, *E.F.I*, 1618-21; 192-93, 204. Robert Hughes at Patna to Surat, 12 July 1620, in *Factory Records, Patna*, vol. 1: 2

38 K.N. Chaudhuri, 'The Company and the Textile Industry': 148.

In the second situation of commodity production, craftsman lacked independence. They did not undertake production on their own but on behalf of the merchants.[39] The material remained in the hands of the craftsman until the production process was completed, but all this time it was not his but someone else's. This was the 'putting out' system in which the merchants advanced money to the weavers and other craftsmen. The latter in turn became bound to supply particular commodities, according to specification on size and variety, at fixed rates and on a stipulated date. Under this system the artisans was left to buy the raw material himself from the advances. The finishing of the cloth — proper washing, bleaching and dyeing following the weaving process was the responsibility of the merchant and not the weaver.

It was not necessary for the merchant to contract business directly with the weavers. The merchants could appoint one or two agents. The agents were of various grades all of them acting as intermediaries between the weavers and merchants - the *Gumashtah* or Company's agent, also called a broker or *Dalal* and below them ranked the *Paikars* or whole sale dealers. The *Gumashtah* and *Paikar* abounded in all the cities and towns. The *Dalals* or middlemen got *Dadani*, or advance money from the agents of the factories to the

---

[39] Irfan Habib, 'Potentialities of Capitalist Development': 43.

proportion of half or three-fourths of the estimated value of the cloths. The brokers distributed this money among the *paikars*, who in turn passed it on to the weavers.[40] The weaver was answerable to the *paikar*, the *paikar* to the broker and the broker to the Company. After delivery of the cloth the contract was automatically discharged and the weaver was once again free to decide the course of his action.

In the Bihar District the commercial agent of the Company -- *Gumashtah* – entered into engagement with 2200 of the best weavers in the country around Jahanabad, including the division Holasganj, Sahebganj and a few perhaps in Vikram, Arwal, Daudnagar, Ramgar. Each man, on becoming bound – *Asami* – to the Company, received Rs. 2 and engaged not to work for any other persons until he had met the requirements of the Company. The agent ordered each man to make certain number of pieces of a particular type and he was paid for each on its delivery according to the price stated in the tables.[41] A consignment of 39 bales of *baftas*, 4 of *amirtis* and 2 of *lakhkauris* was dispatched in December 1718 and *Gumashtas* were sent to the *aurangs* to contract for *chintz* for the ensuing season.[42] In the same month, a sum of Rs. 30,000 was advanced to the Company's broker

---

40 Grant, *A Sketch of the History of the East India Company*: 67.

41 F. Buchanan, *Bihar and Patna*, vol. II: 653

42 C.R. Wilson (ed.), *Early Annals of the British in Bengal*, Vol. III, 1895-1917, London: 78.

for purchasing Patna saltpetre at Rs. 5.4 per maund.[43] The next month Brown, the chief at Patna asked for more money to advance to the saltpetre *asamis* for the purpose of other investments. A sum of Rs. 60,000 was sent to Patna immediately and 'full supply' was promised to be sent later. The contractors or *Pykars* were paid by the company at the rate of Rs. 1.14 as, for one maund of saltpetre, supplied, but they paid Rs. 1.6 annas only to the *Nunias*.[44]

The ready cloth appears to have been collected together in a market as at Patna. Buchanan from Patna reported that "the native traders have established twenty two houses (*Parchuniya Kothis*) for the purchase of cloth.[45] Bolt testifies that the ready cloth used to be collected in a warehouse, where the *Gumashtah* at his convenience sorted them out and fixed the price of each piece with the help of a *Jachnedar* or assorter.[46] This would imply some price control over all the varieties and their grades. The Company's servants were at liberty to reject any number of pieces (of cloth) on the ground that they fell below the standard quality, and the price of each piece was deducted and set off as outstanding balance against the weaver concerned. In

---

43 *Ibid*: 78.

44 *Journal of Indian History*, April 1941, Supplement: 14.

45 F. Buchanan, *Behar and Patna*, vol. II: 652; Martin Montgomery, *Eastern India*, vol. I: 168.

46 Bolts, *Considerations on India Affairs*, London, 1772: 193.

case of delay or any other infringement of the agreements, the manufactures were liable to penalties, and even to prosecution.[47]

The diverse role and necessity of brokers brings into focus certain features of the craft organization in Bihar, at the grass root level.[48] First there was an incredible territorial diversification of centers of craft production, located far and wide. Second, the individual output of these production centers for the same commodity was very low. Third, some centers specialized in particular commodities only.

Taking the textile industry, as an example, there was not a single manufacturing territorial unit capable of meeting the demand alone, of even one of the foreign Companies. The situation was further complicated by the large number of competing buyers in the same market for the same goods. Thus the existing production process created a demand for the services of a large number of brokers to contact the producers scattered at numerous centres of production and arrange for the required volume of goods for their clients.

---

47 H.R. Ghosal, *Economic Transition in the Bengal Presidency (1793-1833)*, Patna University, 1950:19-20.

48 The role of brokers has been dealt with by A. Jan Qaisar, 'The Role of Brokers in Medieval India', *I.H.R*: 240.

The Dalals or brokers played an important role in the craft organization of Bihar in the seventeenth and eighteenth centuries. They acted as middlemen between the buyers and craftsmen and formed a highly specialized commercial group. They acted as a link between the producers, wholesalers, retailers, and consumers.[49] Both the foreign companies unacquainted as they were with the country's pattern of marketing and language and Indian merchants or craftsmen were dependent on their services to facilitate business transactions. With the brisk commercial activities during the seventeenth and eighteenth centuries the inland centres of production and commerce too got involved with the country's international commerce. The need of establishing contacts with such centres was felt by both Indian and foreign merchants. The brokers were a great help in the opening up of new areas of trade for their clients. The brokers had to go to distant places in search of goods for their clients. Peter Mundy at Patna "sett Brokers to seek out for coarse Ambertees".[50] When they were on such business tours, say for clothes, they would carry with them the "patterns" or "approved

---

49 *Ibid*: 220

50 Peter Mundy, *Travels*, vol. II: 145-6.

samples", as required by their employers in order to show them to the weavers to prepare clothes accordingly.[51]

As a result the number of brokers increased concomitantly with the expansion of trade and commerce in Bihar during the seventeenth century. Manrique reports about Patna (1640) that "the trade was so great that they informed me, it contained over six hundred brokers and middlemen engaged in commerce...". Manrique adds that brokers "derived such great profits from their labours that most of them were wealthy men".[52] Fryer remarked: "Their whole desire is to have money pass through their Fingers, to which a great part is sure to stick".[53]

A significant development that took place owing to the substantial expansion of the market was a degree of specialization in the brokers functions, i.e., some brokers specialized in dealing in a particular line of business or commodity in 1632. Peter Mundy refers to one Ganga Ram of Patna as "the chiefest Broker in their parts for coarse linen".[54]

---

51 W. Foster, *EFI*, 1618-21: 87.

52 Manrique, *Travels*, vol. II, 146.

53 John Fryer, *A New Account of East India and Persia being Nine Years' Travels*, 1672-81 (ed.), W. Crooke, vol. I, Hakluyt Society, 1909: 212.

54 Peter Mundy, *Travels*, vol. II: 146

The brokers took commission from both the parties namely the buyers and the sellers. The rate of brokerage was not always uniform for the commodities. Thus in 1620 the English Factors at Patna reported that by the "Nabobes comande" the brokerage on all the variety of silk was fixed at "5 annes of a rupye percent" (5/16 percent) from the buyer and "10 annyes (5/8 percent) from the seller, while with regard to the cloth (silk? Cotton?), the brokers could not claim anything from the buyer "onlye his curtizye", but he realized from the seller "half a pice per rupye" (a little one per cent?). The factors also add that the official rate with regard to silk was violated by the brokers since they "usialye" took half per cent from the buyer and one per cent from the seller.[55]

A.J. Qasiar emphasizes that the seller, who was probably also the primary producer, was made to pay more than the buyer in the example cited above, thus showing a certain bias in favour of the traders. Moreover, if the word 'clothe' meant a silk and not a cotton fabric, then it would assume an additional significance, that is, a distinction was made between the two phases of production – silk yarn and silk cloth. From another instance we learn that while buying a particular kind of cloth the buyer did not pay any brokerage, but the seller had to give "five pices in eatche peece of what price

---

[55] W. Foster, *EFI*, 1618-21: 194-5.

soever". But of these five pices, the brokers took two pices, "two pices the Governor of Shekdare of the prigony, and one pice they retorne back to the merchant".[56] Thus in this case the brokerage was a fixed amount and not expressed in terms of percentage.

What emerges from the economic structure of the *Dadni* or the putting out system is the following: The economy of Bihar in the seventeenth and eighteenth century, in keeping with the Indian economy was a seller (i.e. 'producers') market. There was a tremendous demand, with large number of competitive buyers flooding the market. Thus, from the merchants point of view, especially those engaged in foreign trade, the putting out system excluded the rivals and secured him timely delivery of a stipulated quantity of commodity in accordance with his specification at previously agreed rates. On the other hand the primary producers in different crafts accepted advance since he had to cope with extensive orders for which he did not have adequate capital to buy raw materials and even maintain himself. The income of the artisans was low. Available evidence pertaining to the income of the artisans indicates that it was hardly possible for them to out grow the subsistence level of existence. Buchanan points out 'The common fare of many poor labourers consists of boiled rice or other grains, which is

---

[56] *Ibid:* 205.

seasoned with a few wild herbs boiled with pot ashes and it is only occasionally that they can procure fish!'[57] Also the artisans engaged in full time occupations such as weaving, found it difficulty to acquire a detailed knowledge of the larger market and it was simpler and easier for him to rely on the information supplied by the merchants as a mean of controlling the level of out put. Thus, the putting out system rendered economic services to both the merchant and the craftsmen.

Conclusively two distinct approaches can be discerned within the mode of commodity production, which were adopted by the craftsmen to the problem of adjusting output to demand. These approaches were functionally distinct though not mutually exclusive. The same weaver who worked to order during the busy export season could work at his own risk during the slack months.[58] The same weaver would make one piece a month for the Companies and use his spare time to make common cloth for internal use, in order to augment his income. The same weaver wove traditional coarse cloth and well-known varieties for the open market. At one time a weaver could decide unilaterally when, how much and what kind of goods to make and sell his finished product in the market himself. The same weavers could in the 'putting out' system simply sell his labour and not be in a position to exercise much leverage in the market place. In

---

57 F. Buchanan, *Purnea;* 491.

58 K.N. Chaudhari, 'Structure of Indian Textile Industry': 147.

this situation the craftsmen surrendered control over important decisions connected with the design, size and time of output to the merchant.

However, whichever system was in operation, the craftsmen would be in direct contact with the final customers only via an intermediary and never got the true value of his product. The source of the weavers capitalization could be self generated or mercantile. Yet he was strongly dependent on the wholesale dealers for marketing his products. "The technology of production involved many intermediate stages, and the separation of functions was social as well as technical. For example, cotton cultivation, spinning of yarn and even the weaving process itself were carried on separately by different groups of craftsmen.[59] These different stages of production of cotton textile were all separately financed and the entrepreneur groups were quite distinct from one another. Similarly, the different stages of the production of silk yarn and silk piece goods were also carried on and financed separately. "The absence of central control in production had crucial implications for industrial organization and its form. Under such conditions it became easy for the traders to assume control over artisans through their experience of the market".[60]

---

59 *Ibid*: 156.

60 *Ibid*: 157

Infact, as the country fell more and more into confusion in the Post-Plassey years of transition, marked by increase of British influence, these middlemen became highly unscrupulous and inflicted harsh treatment on weavers in collecting investments for their master. Under the plea of supplying cloth to the Company, the *Gumastahs* considered themselves entitled to command the labour of every weaver in the province on their own terms. This is despite the fact that in 1773 Waren Hastings had granted full freedom to the weavers. They were not obliged to receive advances against their inclination either from the Company or from private merchants. But this order of the governor-general remained almost inoperative. Weavers continued to suffer.

There had been several complaints against the *Gumastahs* who oppressed the weavers in various ways. In 1777 the Provincial Council of Patna rightly observed – "It never can be the intention of the Company to exact from the industrious manufacturers their goods at an inferior price or compel them to labour contrary to their inclination... It is certainly left to the choice of the weavers to accept the Company's advances or not, all that they expect from them is the preference of their labour till the investment is supplied... That they do not at present receive the price of their goods is a fact too well ascertained to admit of dispute, as also they suffer other grievances, they are imprisoned and beat at the pleasure of every underling belonging to the contractor... That it has been the constant maxim of

the Company for some years past to remove every restraint on the cloth trade as one of the principal staples of this province where we are concerned to observe has been on the decline for sometime, the difficulties with which the weavers have seen hampered may be imputed as the first cause of this; and nothing seems to have been wanting to complete it's ruin but the varieties of new impositions on them"[61]

The practice of receiving advances by the weavers fostered their dependence on the others and its material consequence was loss of incentive for good work. Buchanan observes "further it would appear that the system of advances, and a good deal of fine cloth is make on advance, produces its usual consequences and the workmen become indolent, do not make a greater value than they do when working at coarse goods for ready many sale... the system of advances is totally unnecessary, but it is here pursued by all the native dealers as keeping the worker in a state of dependence, like better, if so good as slavery".[62]

These oppressions of the contractors led the Company to revert back to the mode of obtaining investment through their own agency in 1787 and consequently, commercial residents were appointed in each

61 Letter from Provincial Council of Patna to the Chief of Patna Factory, 20 Feb. 1777, cited in *J.B.R.S.* vol. XLVI; 187-88.

62 F. Buchanan, *Patna-Gaya,* vol. II: 654.

of the chief factories of the Company in the Bengal presidency. A number of regulations were also enacted to protect the weavers from oppressions of the Company's *Gumastahs*. Nevertheless the lot of the weavers continued to be unenviable. According to Buchanan, in the districts of Patna and Gaya, the weavers were forced to act as porters for carrying goods of travelers. Whenever any person of rank or authority called upon the *zamindars* to provide porters, the weavers were required to perform this work.[63] Indigo planters obliged the weavers to cultivate indigo instead of working on their looms. Such coercive practices were rampant throughout Bihar but most particularly in the district of Tirhut. In a petition to the Commercial Resident of Patna in 1793 weavers of Tuppas Saidpur, Chakulia-Gurjou *Pargana* Busara in Tirhut complained that they were compelled by indigo planters to cultivate in consequence of which their time and labour was so totally employed that they could not make or delivers their cloths according to the *Kistbandi* with the Company.[64]

The wretched conditions of the weavers was described by the Collector of Bhagalpur in October, 1789 in a letter to John Shore, then President and Member of the Board of Revenue in these words: -

---

63 *Ibid*: 654; Martin Montgomery, *Eastern India*, vol. I: 387.

64 Letter, dated 29th January 1793 form Mr. E.E. Pote, Commercial Resident at Patna to Robert Bathurst, Collector of Tirhut.

"On enquiry into the condition of the weavers at this place, I find they labour under various oppressive and almost intolerable taxes, which, in policy, justice and humanity, appear to demand instant reform. Previous to being disposed off their cloths are stamped at three different place; viz in Nath nagar, where the fees of stamping or chopping is 36 *Cutche Gundas* per Rupee, at Bhagalpore *cutiherry* (*kachahri*) where the fee is 26 Cutcha Gundas and at Nath nagar (Champangar) where it is 25 *Cutcha Gundas.* The aggregates of these different fees amounts to 87 *Cutcha* or 65 *Pucka Gundas* per Rupee; which Rupee in worth about 320 *Pucka Gunda.* This makes the whole fee amount to the prodigious proportion of 20 ¼ percent.... Exclusive of the excessive rate of these fees the mode of levying them has been a source of vexation for as they have generally been formed, a door was opened to abuse in the valuation of the cloth, which I understand the farmer's *Gomastah* frequently availed himself of by overrating to press in a most unwarrantable manner.[65]

Besides the putting out system there also existed, on a very limited scale a third form of productive organisation in Bihar corresponding to the manufactory or the *Karkhana.* The Karkhanas implied the assembling of a number of artisans and labourers with specialized skills developed outside for continuous production. The

---

65 Letter dated 28th October, 1789 from Collector of Bhagalpur to John Shore, President and Member of the Board of Revenue *Bhagalpur District Records,* vol. VIII: 104.

artisans worked under close supervision on materials provided by the noble. It meant that the artisans, previously an independent or contract producer was being converted into a wage labourer. It is likely that he still retained ownership of his tools. However, the *Karkhanas* of the emperors and nobles did not undertake commodity production, but production of luxury articles ranging from the most precious jewels to the finest muslins. "The native prices, and chiefs of various description, the retainers of numerous dependents, afforded a constant employment to a vast number of independent manufacturers, who supplied their masters with gold and silver stuffs curiously flowered, plain muslins, a diversity of beautiful silks and other articles of Asiatic luxury"[66].

However, the manufacture of the *Karkhanas* was directly for the personal use of the official aristocracy rather than for the market. This naturally limited their economic significance. Besides the royal and aristocratic *Karkhanas*, in certain trades such as the silk trade in Bihar, it appears to have been more economical for the bigger merchants to undertake the processes of winding, dyeing, and cleaning the raw silk in their own premises. A "CorConna" employing nearly a hundred workmen to wind silk was established by two

---

66 Foster, Foster, *Journey*, vol. I: 1-4.

visiting English factors at Patna in 1620[67], quite obviously following the practice of other local merchants.

Opinions vary on the position of the merchant and the producer in the seventeenth and eighteenth centuries, on the nature of the putting out system and its implications for the transitions from merchant capital to industrial capital, i.e., the progressive control of labour, and production processes by capital. These opinions have been put forth in the debate about the 'Potentialities of Capitalistic Development in India' Leaning heavily towards the view that the putting out system was well established is Irfan Habib. He has argued that 'the putting out system was widely in use, and that cash advances and the giving out of raw materials were established practices'.[68] Habib's perspective is broad in this article. Tapan Raychaudhary's estimation of the organisation of the Coromondel textile industry is more cautious, stating that "a full fledged putting out system... had not emerged."[69]

---

67 W. Foster, *EFI,* 1618-21: 197-98.

68 Irfan Habib, 'Potentialities of Capitalist Development': 4.

69 Tapan Raychaudhary, 'Jan Company in Coromondel 1605-1690, (The Hague, 1962: 11; Also Joseph J. Brenning, 'Textile Producers and Production in late Seventeenth Century Coromondel' Sanjay Subramanyam : *Merchants, Markets and the State in Early Modern India.:* 85

The degree of penetration of merchant capital into the artisan level production process, through the putting out system could be assessed by examining whether the merchants advanced cash or raw material (or both) and the tools of production to the artisans. We have adequate evidence for advances being given in cash to infer that it was a well-established practice. However the evidence for the raw material is both insufficient and ambiguous for establishing its wide use, while that for instruments of production is almost negligible. Here it may be pointed out that the need for giving raw material (yarn) to the weavers arose from the consideration that the yarn obtained by weavers themselves was often of inferior quality, even when granted cash advance. It appears that some profit accrued to the weavers when they purchased yarn of raw silk of a quality questionable from the merchant's point of view. Thus it may be assumed that the weaver did not always welcome the supply of raw material from the merchant as this possibly wiped off the little "cut" they could otherwise get. This partly explains the scarcity of data on the practice of advance being made in raw material. Even A.I. Chicherov, despite his strong advocacy of the development of capitalistic relations, is struck by the scarcity of data on the advancing of raw material, that is yarn, to the weavers. He himself explains that "the supply of raw materials never posed a problem". In the rural areas "cotton growing, which was extraordinarily extensive and in some areas almost universal, was a typical economic – geographical feature of India;

cotton could be grown in every farm or bought to the nearest market".[70] Chicherov adds "spinning, widespread not only in the weavers' home but also in ordinary peasant families, created a constant and vast source of raw materials for the weaving trade".[71] There is ample evidence that thread used to be sold by weight or could be exchanged with other commodities in the market. Cotton, both in seed and wool alone was retailed party by *Dhuniyas*, partly by *Khichri Furosh* and partly by traders called *Paikars* or *Phariyas*.[72] Thus it was the weaver and not the merchant who purchased yarn from the local market. It may safely be concluded that the most distinguishing feature of the putting out system during the seventeenth and eighteenth century in Bihar was the practise of cash advance and not raw materials.

The part played by the practise of cash advance in transforming the relations of production needs to be analysed. The merchants giving out advances were only interested in the finished products and thus largely remained outside the production process.[73] As such it

---

70 A.I. Chicherov, *India: Economic Development in the 16th – 18th Centuries*, Moscow, 1971: 181.

71 *Ibid*: 45

72 *Fatawa i Alamgiri*: 114, cited in, Naqvi *Urban Centres and Industries* : 153.

73 Sushil Chaudhari, 'Textile Trade and Industry in Bengal *Subah*, 1650-1720', *IHR*: 274.

did not bring about a radical change in the relations of production. It is true that the producer was 'tied' to the merchant. Now he was under an obligation to fulfill his commitment, i.e. to provide the merchant with the commodity produced by him in accordance with the merchants specifications,[74] within a limited time and at an agreed price. The artisan was no longer the owner of his produce. He still retained the ownership of the tools of production and raw materials too. Since the tools were highly rudimentary and cheap to make or purchase and no technological breakthrough was achieved rendering them costlier, and beyond the means of an ordinary artisan, the latter was not alienated from them. This clearly indicates that the control of labour by merchant capital was indeed very weak.

What really happened was that the craftsman had merely sold off his produce in return for advance payment out of his free will. There does not appear to have existed any extraordinary economic compulsion (except poverty) for him to accept such orders from the merchant. Nor does the merchant appear to have employed non-economic coercion to compel him to enter into such a deal. The weavers on their part were not entirely scrupulous. The desire for illicit gain and sly deception by the weavers is reflected in his attempt to make the woof of one end of the cloth coarser than that of the other, and attempt to sell it to the unwary by the fine end. It is also

---

74 A.J. Qaisar 'The Role of Brokers' : 243.

seen in his attempt to make the pieces somewhat shorter than the regular.

The argument of Chicherov that the relations between the merchant and craftsman during the seventeenth century was marked by "economic bondage", "economic dependence", "physical coercion" and "merchant monopoly"[75] seems incongruous. However, this does not imply that the merchant capital operating though the putting out system did not exercise any influence on the organisation of craft production. A. Jan. Qaisar opines that the putting out system encroached on the 'independent' status of the primary producers, into a 'contract worker'. It also cut him off from the market – a process that was inherent in the system itself. Despite the increased demand for textiles and competition among buyers, both European and Asian, it seems that the weavers and artisans had hardly any bargaining power which remained mostly in the hands of these merchant middlemen. Of course, the situation was no different when the usurer's capital was operative and the artisans and peasants also sold off their "future" to the village money lender.

As long as the artisan worked within the domestic system of craft production, real capitalistic relations of production could not be generated. What could not emerge was a commodity production

---

75 Chicherov, *India – Economic Development*: 175, 176, 167, 173, 166.

manufactory. This implies an assemblage of a large number of workers at one place and at the same time for the production of the same commodity under a superior capitalistic direction. It is true that there were *Karkhanas* maintained by the nobles and occasionally by foreign companies and local merchants. However it is important to point out that such pieces of evidence refer to only one sector of textile craft production, that is silk fabrics, a costly commodity, and that too limited to Patna.[76] Even here it is highly doubtful whether the latter was providing tools. The sporadic occurrence of commodity producing manufactories or *Karkhanas* can be attributed to the better adaptability of domestic industry to excessive exploitation of labour. The paid labours of the domestic artisan included the labour of his wife and his children, an advantage that would be lost in the merchants' manufactory. The merchants would not, therefore have found it profitable to establish *Karkhanas* unless the materials used was too heavy, or the process of production was too short to justify the distribution of the material. At best these sporadic examples of *Karkhanas* indicate the direction of change during the latter half of seventeenth century. Yet these changes were neither fundamental nor widespread as to compel us to discover in them elements which could promote real capitalistic relations. All these changes were

---

76 Foster, *EFI*, 1618-21: 197-98.

within the existing mode of production,[77] wherein merchant capital had a very feeble hold on the production process. Therefore it would be incorrect to say that merchant capital "broke through the traditional bonds of production" in the seventeenth and eighteenth centuries. It had only nibbled a small part on it, of not much consequence.

It is pertinent to ask why merchant capital operating through the putting out system, failed to exercise if any worthwhile control over labour? That the failure did not spring from a lack of the development had been examined by Irfan Habib. It has already been suggested that the enlargement of demand and flooding of the market with a large number of competitive buyers had put the primary producer in a favourable situation: the absence of any extraordinary economic compulsions or non economic coercion left the artisan free to strike a deal with whom soever he considered best. Another important reason was the co-existence of the independent artisan level production with the putting out system (which turned the artisan into a contract labour"). The former was probably on a scale larger than the latter or atleast on equal footing. The territorial and occupational mobility of the artisan was yet another factor which often may have rescued him from falling into "economic bandage" or

---

77 A point which Chicherov concedes himself, *India-Economic Development*: 173.

"dependence" as a result of his poverty, on which Chicherov lay so much stress. Finally, the interests of the brokers and merchants did not always coincide. The former tried to seize upon an opportunity to get some irregular income through underhand mechanism, his victims were both the producers and the merchant. Thus he did not always act in a manner, which could promote the interest of merchant capital; rather he sometimes worked in collusion with the artisan.

Perhaps it would not have been difficult for some merchants, especially for broker contractors (middle man - merchants) who were in close proximity with the productions process, to evolve into manufacturing entrepreneurs. But a mere change in the organization of production unaccompanied by basic changes in technology could not cut much ice.

CHAPTER VIII

THE SOCIAL WORLD OF THE CRAFTSMEN AND THE CULTURAL DIMENSIONS OF CRAFTS

Crafts cannot be analysed in isolation from the culture of those who create it and are dependent on it. Culture in an integrated whole and any craft in its form and usage, partakes of the values and symbolism inherent in the culture pattern. Culture gives certain coherence as well as continuity to the system of craft production. Cultural values and norms influence and define processes of production including its technology and distributive systems. The production system thus becomes one of the constituent elements of culture and as such is regulated by the same.[1]

The economy of any given society and its linkage to its socio-cultural system has been questioned by few. However, functionalists like Talcott Parsons and Neil Smelser deny the isolation of the economy from culture, the latter being a sub-system of the society.[2] B. Malinowski observes ".... it is becoming increasingly recognised that the processes of production, exchange and consumption do not happen in a vacuum, but within the cultural context."[3] N.K Bose

---

1 Rajatsubhra Mukhopadhyay, 'The Cultural Framework of Agriculture: Some Observations', *Trends in Social Science Research.* vol.1, No 1, June, 1994: 81.

2 Talcott Parsons and Neil J Smelser, *Economy and Society*, London, 1956: 22.

3 Bronislaw Malinowski, *Sex, Culture and Myth* , London 1963:196.

observed that 'A production organisation is attended by its own code of morals. The moral may continue to be effective even after a productive organisation had been altered.[4]

Culture, as a deep-rooted feeling — conviction and belief system — rules the way by which economic needs are satisfied in a society. Culture, as a cognitive system, an organised set of norms and values, governs or shapes the mode of economic actions in various ways. The way the people of a given society view their economic role and activities is considerably influenced by their culture.[5] While it cannot be denied that wider cultural values determine the direction of technology and craft activities, yet utilitarian requirements and pragmatic considerations also, deserve to be kept in view. Terms like 'values', 'attitudes'. 'aspirations' etc. acquire a meaning only when they are related to particular social groups or classes with possibly divergent interests. For value's and 'attitudes' are never absolute but always relative.

The genesis of the culture of the craftsmen can be analysed from the point of view of their 'thoughts' and worldview. These relate to their philosophy of existence, and social adjustment, knowledge of

---

4 N.K Bose 'Impact of Changing Technology on Society' *Economic Weekly*, No. 13, 18 March 1961 :473 -474

5 Rajatsubhra Mukhopadhyay, 'The Cultural Framework of Agriculture': 81.

reality, hedonistic pattern or modes of enjoyment of life. The thoughts in turn were expressed in community structure and custom, institutions and conventions, rituals, attitudes towards religion, festivities, routine of daily life, ceremonial rites, social imperatives and taboos, peculiarities of food, matrimonial restrictions, ethnical insularities, structure of families, varying rights of inheritance and devolution. An analysis of the culture of the craftsmen also raises questions on the degree and mechanics of caste and occupational mobility, the meaning of community, nature of kinship ties, and hierarchy of classes and interaction. These cultural complexities had a deep foundation and there own dialectics. They should not be regarded as peripheral, obscurantist, backward, but rather as important social activities with a rich symbolic content, with an underlying coherent and articulate philosophy. The culture of the low caste groups cannot be taken as being representative of Little Traditions relatively uncontaminated by the Great Traditions. Nor can it be dismissed as being a poorly sankritized prototype of the upper caste culture since the latter is tacitly accepted as pervasively normative. In other words the cultural system of the craftsmen deserves investigation in its own conceptual and structural perspective and with close attention to the peculiarities of its own history.

The social world of the craftsmen in seventeenth and eighteenth centuries in Bihar, was a complex one. The craftsmen were organised into a number of distinct hereditary castes (*jati*). The caste was the first level of community organization. In Bihar, the organisation of the craft occupations into distinct *jatis* was as follows:

The *barhi* or *barhai* were the carpenters caste;[6] *chamar*, the tanner, the leather seller and maker of shoes and saddlery;[7] *gareri gaderiya, bhenrihar* were the blanket weavers;[8] *kamars* were workers in all metals, including gold and silver and distinguished from the *lohar* by not confining themselves to the fabrication of iron implements alone;[9] *lohars* worked as both blacksmiths and carpenters[10] This was unlike the *lohars* of Western Bengal, where none of the *lohars* combined carpentry with working in iron; *leheri, lehera* engaged in manufacture and sale of the lac bangles;[11] *kumhar* or *kumbhakar* or *kumar* were the potter caste;[12] *nunia, noniyay* engaged in saltpetre manufacture and various kinds of earth work

---

6 Risley. *Tribes and Castes of Bengal*, vol.1: 66.

7 *Ibid*, vol. II: 175.

8 *Ibid:* 271.

9 *Ibid:* 388

10 *Ibid*, 1.

11 *Ibid*, 23.

12 *Ibid:* 517

and cultivation;[13] *sonar, kain, kainya, zargar* was the goldsmith caste and were also money lenders and traders;[14] *tanti, tatwa, tantwa, tantubaya, tantrabaya* were the weaver caste;[15] the *jolaha, momin,* was the Mohammedan weaver caste of Bihar.[16] From W.Hoey's account it appears that while the Hindu weavers produced only the coarser variety, the Muslim weavers produced the finer cloth, though they may have made the coarser ones as well.[17] *Jolahas* who had been successful in business and had means were usually ashamed to call themselves *jolahas* and used the word *sheikh* before their names, for the *jolahas* occupied a low place in popular esteem. The titles of the *jolahas* are *karigar, malik, mandal* and *shikdar.* Their headman is called *muatabar.* The 1872 Census should a concentration of the *jolahas* in Bhagalpur, Hazaribagh and Lohardaga.[18] The *pan, panwar, pab, panr, panika, chik, chik baraiks, baraik, sawasi gande, mahato,* were a low weaving caste which also made basket. They were scattered under various names in the southern and western parts of Chhotanagpur,[19] Lohardaga, Singbhum. The term *baraik* connotes

---

13 *Ibid,* 35

14 *Ibid,* 256

15 *Ibid,* 295.

16 *Ibid,* vol. 1: 348; S, H. Hutton, *Castes in India,* Oxford,1951: 121,128.

17 W. Hoey, *Trade and Manufactures:* 123 -4

18 Risley, *Tribes and Castes,* Vol. 1: 34 8-347.

19 *Ibid,* vol. II: 155.

the 'great ones'. This title was also used by the *jadubansi* Rajputs.[20] The term *ganda* suggest the possibility of descent from the tribe of the Gonds.[21]

However, each caste was usually the functional designation of an extremely heterogeneous group. Members following the same occupation had led to their being called by a common name, but had not welded them into a uniform group. The component elements of the castes and the multifarious internal division remained distinct. Presence of specific local groups, of subcastes bearing geographical names, of subcaste names which signify recruitment from higher orders which somehow or the other seem to have sunk to lower levels, also incidence of pronounced variation in the features of different subcastes coming from different geographical regions - speak well against the homogeneity of the various castes. In other words, belonging to the same community of occupation did not necessarily bring about integration. The craft groups were further layered horizontally and vertically, into a network of subgroups each striving for its own self-definition and self-regulation.

---

20 *Ibid:* 157.

21 *Ibid:* 57; Joseph J. Brenning's study of the weavers in the late seventeenth Century in the Coromondal Coast reveals that there were no low or outcaste weavers in that region. For this finding see Brenning, 'Textile Producers and Production in late Seventeenth Century Coromondal.' Sanjay Subrahmanayam (ed.), *Merchants, Markets and the State in Early Modern India, New Delhi 1994: 80*

Each caste group of the craftsmen was marked by endogamous divisions and exogamous subdivisions. These subgroups were formed and organised on the basis of territorial origin, or the place of ancestral origin or even specialisation in a particular production technique. Thus the *barhi (barhai)* caste, was divided into six subcastes, the members of which did not intermarry.[22] According to one legend the distinction between *kanaujia, kokas* and the *maghaya* subcastes of the *barhi* was based on the former two working in wood only and the latter in both wood and iron. Another tradition asserts that the *maghayas* were house carpenters working in larger and coarser scale than the *kanaujias* who were turners, cabinetmakers and the like.[23] Again the *lohar* subcaste of the *barhais* in Bhagalpur worked only in iron but disclaimed all connections with the *lohars* or blacksmiths.[24] The *kamar-kalla* sub caste of the *barhai* had no settled homes but wandered about exhibiting marionettes *(katputli)* and doing odd jobs like gypsies.[25]

The *lohar* or blacksmiths were a large and heterogeneous aggregate, comprising members of several different tribes and castes, who took up the profession of working in iron. Thus *koka lohars*

---

22 Risley, *Tribes and Castes*, vol. I: 66

23 *Ibid.*

24 *Ibid.*

25 *Ibid.*

probably were a branch of the *barhai* who took to working in iron and separated from the parent group.[26] The *kanaujia lohars* claimed to be the highest in rank, and they alone had a well-marked set of exogamous sections. The *kanaujia, mathuriya* and *mahur* or *mahulia* profess to have come in from North West Provinces as against the *maghaiya lohars* who seem to be indigenous to Bihar. It is likely that the *mahur* or *mahulia* broke off from some comparatively respectable caste, for all Hindus can take water from their hands.[27] The *kamar-kalla lohars* were perhaps a degraded offshoot from the *sonar* caste.[28] The *kamia lohars* found in Champaran had emigrated from Nepal and were regarded as ceremonially unclean. Many of them were Muslims.[29] In Lohardaga were found the *manjhal turiyas* who were a branch of the *turi* caste and the *munda lohars* who were certainly *mundas* and the *sad lohars* claiming to be immigrant Hindus.[30] In the Santhal Parganas there were three sub caste of Lohars- *birbhumia* from the neighbouring district of Birbhum; *govindpuria* from subdivision of Govindpur, in Northern Manbhum; and *shergarhia*, from the *pargana* of that name in Bardwan.[31]

---

26 *Ibid:* 22

27 *Ibid.*

28 *Ibid.*

29 *Ibid.*

30 *Ibid.*

31 *Ibid.*

Amongst *tatwas (tanti)* the common territorial groups were - *kanaujia* and *tirhutia,* the former being of a higher rank than the latter, who were despised and shut off from all social intercourse.[32] The groups *baiswara* and *uttarha* among the *tatwas* seem to also have reference of locality.[33] *Banaudhia* occurs among some of the *baniya* castes;[34] *baiswar* was a common sub-caste of the *kurmis.*[35] *Chamar tanti* and *kahar tanti* suggest that some members of the *chamar* and *kahar* castes may have taken to the professions of weaving and thus formed a new endogamous group loosely affiliated to the *tantis.*[36] This probably indicates the increasing demand for clothes and weavers. There was also a broad distinction between weavers of fine cloth and weavers of coarse cloth. Infact, weavers employed by the East India Company's factory *(aurung)* were given titles like the *jachandar,* appraiser; *mukhim,* supervisor; *dalal,* broker; *sardar,* head of the group of workmen.[37] The *mundas* of Ranchi has a strong prejudice against taking up weaving, which they considered to be a degrading occupation.

---

32 *Ibid*, vol. II: 298

33 *Ibid.*

34 *Ibid.*

35 *Ibid.*

36 *Ibid:* 296

37 *Ibid:* 298

The multifarious internal divisions in the craft-caste group seems to imply that the distinct caste groups of various occupations had sprung up to meet local wants and that each group was formed out of local recruits from the surrounding population.

It appears that the craftsmen in Bihar were highly mobile. Demand for labour in the industry was frequently met through migration. The labour force was expanding through entrants of new recruits. These recruits could be from the ranks of agricultural labour or from the mass of ordinary or unskilled people who formed an unemployed reserve. Miners must have come from the ranks of the peasantry or agricultural labourers, for when some mines were abandoned the miners went back to tillage. The great number of subcastes (as in the *lohars*) coupled with the fact that in some cases we can determine with approximate certainty the tribes of which they formed a part, points to the conclusion that the aggregate termed the *lohar* caste was made up of draft locally levied from whatever groups were available for employment in a comparatively manual occupation.

Evidence has already been cited for the expansion of the weaving force by the entrance of non weaving castes, as also the low caste labour (like *chamar and kahar*) on account of the considerable increase in the employment potential of the silk and cotton weaving craft. No evidence tells us when these castes entered the textile labour

force. For a low caste non-weaver to enter into the weaving labour force he would have to learn the technique of weaving. Assuming that weaving techniques were not common knowledge, who would teach the low caste labour seeking to become a weaver? It is possible that as demand for export quality textiles increased, caste weavers ceased to produce coarser domestic fabrics and took to producing for export, opening opportunities at the bottom of the weaving hierarchy for non-weaver caste labour.[38] A large number of Bihar *tirhutiya, kanaujiya* and *mungirya tantis* had immigrated to Dacca. They had moved over a period of time and settled down permanently. The geographical mobility could also be partly seasonal conforming to the demand of their work. The *dhuneras* of Bihar went to East Bengal, at the time of cotton harvest.[39] Migrations also provided partial relief from the invaders, political extortion, as well as famines and similar natural calamities. Politically unorganized, the weavers found in mobility an effective and traditional weapon against harsh treatment.[40]

The social world of the craftsmen was permeated with rather elaborate hierarchical values. The craft occupations were unequally

---

38 Brenning, 'Textile Produce and Production': 80-81.

39 James Wise, *Notes on Race, Caste and Trades of East Bengal,* London, 1883: 294.

40 Robert Orme, *Historical Fragments:* 411-412. He has pointed out that it was more difficult to coerce the weavers than other craftsmen and that the whole countryside would be deserted if the rulers tried to use too much force against the textile workers.

placed. Each craftsman knew where he belonged and was in a large measure reconciled to his place in the total scheme of things. Intercaste social relationships were prefixed by the concept of purity and pollution. The extent and degree of purity and pollution depended amongst others, on occupational pursuit, food habits, domestication of animals like keeping of pigs or fowls, engagement of priests in observance of rituals, marriage customs, types of marriage etc. Thus the low caste of a person was indicated through services like attendance on life crisis, removal of carcass from the village lanes, work on tanning etc, taking of beef and pork, source of meat i.e. derived from animal slaughtered alive or from dead animal etc. engagement of a degraded *brahmin* for observing rituals, marriage customs like widow marriage to the late husband's younger brother, bride price, prevalence of divorce etc, marriage by capture and runaway.[41]

The blacksmiths (*lohars*) were considered impure in Bihar, while they were pure in Bengal.[42] In Bihar, the *lohars* ranked with *koiris* and *kurmis* and the *brahmans* would take water from their hands.[43] Buchanan listed the *thatheras* or workers in bell metals and

---

41 Bhabesh Chakraborty, 'Castes in Chotanagpur Villages', *Bulletin of the Cultural Research Institute*, vol. VIII, No. 34, 1969: 107-108.

42 F. Buchanan, *Patna-Gaya*, 335

43 Risley, *Tribes and Castes* : 24

kansaras or workers in brass and bell metals as belonging to the rank of *sudras* in the Patna division.[44] *Jogis* and *patwas* or rearers of silk worms and weavers of the silk were impure though many of this class had acquired some wealth and were a well-favoured people.[45] The *barhis* or carpenters were considered impure.[46] In point of social standing they ranked with *goalas, hajams, koiris* etc. and *brahmans* will take water from their hands.[47] The *kumbhars* (potters) were impure because it is said that they cut the throats of the vessels which they make when they remove them from the wheel.[48]

The *tantis* were conspicuous amongst the craftsmen for holding a degraded position in Bihar and were deemed as vile.[49] The contemptible position allotted to the weaver in the caste hierarchy remained stringent, despite the long endurance of the Indian cotton industry. *Brahmans* did not take water from their hands.[50] This was unlike the *tantis* of Bengal who had sufficient influence to raise themselves to the grade of clean *sudras* and take undisputed rank in

---

44 F. Buchanan, *Patna-Gaya.*: 334

45 F. Buchanan, *Bhagalpur:* 335

46 *Ibid.*

47 Risley, *Tribes and Castes* : 68

48 F. Buchanan, *Patna and Gaya*:: 335

49 Risley: *Tribes and Castes:* 300

50 *Ibid.*

the *nava-sakha* group.[51] The purity of a *tanti* also depended on the quality of starch used in weaving. The *sudra* weaver prepared starch from parched *juttha* leavings. Impure weavers, as the *jugis*, made starch (*mar*) by merely boiling rice - a process, which was considered abominable.[52]

The rules observed in matters of diet, bear as is usual, some relation to the social status of the caste. In Bihar flesh and wine were deemed lawful for *tatwas* and whenever spirits are drunk a few drops are poured forth as offerings to *mahadeva*. *Tatwas* took food from the *gangota, barhai*, and generally the entire group of castes from whose hands a *brahman* would take water.[53] The social standing of the *nunias* seemed to vary in different parts and does not admit very precise definition. In Patna, Muzaffarpur, Purnea, Champaran, Shahabad and Gaya they were placed on the same level as the *tantis* and none of the higher castes would take water from them. *Nunias* would also eat a defiled diet of field rats and pork and drink fermented and spirituous liquor. *Tirhutia brahman* served the *nunias* as priests and officiated at their marriage.[54]

---

51 *Ibid.*

52 *Ibid.*

53 *Ibid*: 301

54 *Ibid*: 136

The craftsmen sought to give a ritual sanction to their status in the caste hierarchy. The myths and traditions of social origin espoused by craft-caste groups almost invariably claimed that their present low status was somewhat not deserving. Typically they attribute a past fall in social status to the rash and foolish action of some ancestor of the group or to an accident provoked by fate or to the trickery of *brahmans* or other upper caste person.[55] *Kanaujia lohars, kamars, barhai* and *tantis* claim descent from the celestial architect and artificer Vishwakarma, by a *sudra* woman.[56] The *awadhia* subcaste of *nuniyas* descended from an ascetic named Bidur Bhakat, who broke his fast on salt earth, being thereby disqualified for the higher life of meditation and condemned by Ram Chandra to betake himself of the manufacture of saltpetre.[57] A common tradition represents the *tantis* as descended from Siva Das or Gham Das, who was born from the sweat (*gham*) that fell from Siva while he was dancing and his wife Kasbati, who was created by Siva from a blade of *kusa* grass.[58] Thus, ritual sanction was sought to be achieved by

---

55 David N. Lorenzen, 'Tradition of Non-Caste Hinduism: The Kabir Panth', *Contribution to Indian Sociology*, New Series, Vol. 21, No. 2, July-December, 1987.

56 Risley, *Tribes and Caste:* 66, 295, 388.

57 *Ibid* : 135

58 *Ibid* : 295

claiming mythological origins and aspiring to a brahmanical or suprabrahmanical status.[59]

The social life of the craftsmen was governed and regulated by their caste *panchayats*. The craftsmen were no longer organised into guilds functioning as corporate bodies. L.S.S.O'Malley's finding was "Artisan castes fixed trade holidays and laid down rules regarding their traditional occupation and enforce their observance." O'Malley pointed out a case in which *kaseras* or braziers of a town had united to keep the last day of the month as a holiday, and outcasted one industrious craftsman who ventured to break the rules. Also, among the functional castes encroachment on the privileges of others—misappropriation of *birit* as it was styled—was severely dealt with. A *barhi* or carpenter could not make ploughs for a villager for whom another *barhi* worked; a *hajjam* or barber had to stick to his own clients; in one case a *hajjam* was an outcast for working for a man who had already dismissed another *hajjam*. A *chamar* could not take

---

[59] The turn of the twentiteh century in Bihar, witnessed the phenomenon of the social upgradation of the lower castes in the Hindu social hierarchy. *Barhais* (Carpenters) and *Lohars* (Blacksmiths) declared themselves to be Vishwakarma Brahmans i.e. descandents of the chief architect of God and wanted to be recorded as such in the 1911 Census. In 1921, they claimed to be *Dhiman* (intelligent) Brahmans. Similarly the *Chamars* desired that they be called Raidaas (follower of the Bhakti Saint Raidas or Ravidas). They put forth a number of anectodes and explanations in order to assert that they were actually the descandents of a Brahaman contemporary of Raja Ramchandra of Ayodhya, who was expelled from his caste. Girish Mishra, Braj Kumar Pandey, *Sociology and Economics of Casteism in India. A Study of Bihar*, Delhi, 1996: 76-77.

the carcasses of cattle that another *chamar* had a recognized right to, and the *chamarin*, who worked as mid-wife, could attend only the women of the families that her family customarily attended. The adoption of another occupation also involved punishments, but only when it was considered of a degrading employment. Apart from such instances there was little or none of the corporate life of a trade guild, and no attempt to fix wages or regulate hours of work—much less any combination of different castes that had the same trade or handicraft.[60]

By far amongst the craftsmen - *kamars, barhi, nunias, tantis lohars* - infant marriage of daughters was the rule.[61] Polygamy was permitted and recognised in the event of the first wife being barren or suffering from an incurable disease. Widow remarriage was allowed without restrictions in their choice.[62] They could also marry the deceased husband's younger brother.[63] Amongst the *kamars* however

---

60 L.S.S. O'Malley, *Census of India*, 1911, vol. V, Part I, Calcutta, 1913: 489-90. Also see, Mishra, Pandey, *Sociology and Economic of Casteism*: 9.

61 Risley, *Tribes and Castes*: 390, 67, 135. etc.

62 *Ibid* : 67, 135, 23, 298, 390.

63 *Ibid* : 67, 135.

widow remarriage was forbidden.[64] Divorce was permitted through sanction of caste *panchayat*.[65]

An important component in the social world of the craftsmen was the worship of gods, annual festivities, religious ceremonies, daily ritual observances and customs. The beliefs and practices of the craftsmen were rooted in popular forms of Hinduism, and included animistic ideas, superstitious belief, cult of the mysterious, a world full of spirits both benign and malignant, the supernatural, the superempirical and the esoteric. The institution of the patron saint the *sant* or the *bhagat* was popular and a socially significant characteristic.

Each group revealed preference for worship of a special deity. The tutelary God of the *barhai, kanaujia lohars* and *kamars* was *vishwakarma*.[66] They worshipped him once a year—the *barhi*, on the Seventh of *srawan*, the *kamars* on the last day of *bhadra*.[67] Significantly, on this day a son was also apprenticed by the *barhai* to the trade.[68] On this occasion homage was done to the tools of the

---

64 *Ibid* : 390

65 *Ibid* : 67, 135.

66 *Ibid* : 67, 391

67 *Ibid*.

68 *Ibid* : 67

craft-the *barhi* worshipped the adaze (*basula*), chisel (*rukhani*) and saw (*ara*); the *lohars*, and *kamars* worshipped the hammer, anvil, and other tools used in the craft.[69] It was a quite domestic *Pooja* without the installation of a deity. Most of the *nunias* were *shaktas, bhagavati* being their favorite goddess.[70] The *tatwas* of Bihar, practised grosser cults of *shakti* or female forms of the great gods. Thus, the *kanaujia* subcaste of *tantis* worshipped Mahamaya or Durga.[71] The *tatwas* also offered sacrifices of goats to Kali in *kartik*.[72]

The craftsmen also showed preference for some minor village dieties. The *barhi, nunias* and *tantis* worshipped the village gods common in Bihar like *bandi, goraiya, panch pir*.[73] In addition the women of the *nunias* participated in the worship of *sitala*.[74] Local patron saints were also worshipped. *Kamars* worshipped Ugrimaharaj.[75] The *lohars* of Chottanagpur addressed their worship to Manasa Ram Thakur, Baranda Thakur, Phulai Gosain, Dalli Gorai, Bhadu and Mohan Giri – the last being perhaps the mountain God

---

69 *Ibid* : 67, 391

70 *Ibid* : 136

71 *Ibid* : 299

72 *Ibid*.

73 *Ibid*: 300,

74 *Ibid*: 136

75 *Ibid*: 67.

(*marang baru*) of the *mundas* and *santals*. To him goats were sacrificed on Monday or Tuesday in months of *magh*, *ashar* and *agahayan*, the flesh being afterwards eaten by the worshippers as *prasad*.[76] The *kamars* would worship Muslim saints – Miran or Shaikh Sadu and Saiyad.[77]

The religious practice of certain craft groups also indicates worship of ancestors, snakes, trees, Sun, Moon, fire or devil. Thus the *tatwas* worshiped departed members of their caste – Saisyar and karuchar, with sacrifices of goats and sheep in the month of *srawan*. *Brahmans* did not preside at these animistic rites, which were performed by the male members of the household. The objective of the rites was of protecting themselves, their families and cattle against the ill will of powerful spirits.[78]

Some of the crafts groups employed *brahmans* for religious and ceremonial purposes. The *barhai*, and *kamars* employed *tirhutia brahmans* for the worship of the greater Gods, and in the performance of *bratas* (fasting). The *brahmans* were not held to incur any social degradation by performing these functions.[79] The *tatwas/tantis* had no *brahmans* at all. Instead the sister's son (*bhanja*) selected a person

76 *Ibid*: 22.

77 *Ibid*: 391

78 *Ibid*: 300.

79 *Ibid*: 67.

as a priest from members of the caste who had joined some religious order. The title of *brahman* was conferred upon him and he was treated with extreme deference.[80]

It may be concluded that the religion of he low caste persons, of which the craftsmen were a part, can be distinguished from the more 'orthodox' Hinduism of the upper castes. The non-caste Hinduism containing both the Great and Little Traditions was subject to the hegemonic influence of the traditions of caste Hinduism. At the same time it bore its own distinctive characteristics. Upper caste hegemony based on concrete economic and political advantages and authority-limited the extent to which non caste Hinduism could overtly challenge caste Hindu beliefs and values, but within these limits it did so. One typical strategy of non-caste Hinduism was to accept many of the behavioral forms or structures of caste Hinduism, while at the same infusing them with an ideological content that was indirect opposition to basic socio-religious values characteristic of caste Hinduism. The results of this strategy is well illustrated in the myth of social origins professed by non-caste Hindus, and in their interpretation of the concept of pollution, *karma, sanskars, bhakti,* grace, *saguna* and *nirguna* god.[81]

---

80 *Ibid:* 300

81 Compare, David N. Lorenzen 'Tradition of Non-Caste Hinduism': 280

The material milieu of the craftsman reveals stark facts ostensibly prohibitive to 'culture'. Their struggle for existence was hard, continuous and self degrading. The deplorable condition of the weaver in 1773 is depicted in the following extract from a letter written by Mr. Rouse, the chief of Dacca. "The weavers are in general a timid, helpless people, many of them poor to the utmost degree of wretchedness, incapable of keeping accounts, industrious as it were by instinct, unable to defend themselves if oppressed, and satisfied if with continual labour they derive from the fair dealing and humanity of their employer a moderate subsistence for their families".[82]

Economically dependent upon patrons and customs, hide bound in caste and outcaste restrictions, professionally skilled but driven to cunning for a bit of surplus over the honest grain or subsistence measure, these men or 'martyrs' of crafts had little time or means or even freedom to indulge in education. However this does not mean that they were 'intellectually dead' or defunct through cerebral disuse. They were not 'intellectuals' of analytical criticality but they certainly exercised their 'mind' or 'mind stuff'. This mind stuff bore and preserved *sanskaras* or impressions from their forebears, ancestors, elders, kiths and kins and professional groups. Since social prestige or respect was denied to most of them, the acute agony through generations, became creative and libertine thinking

---

82 Burkes Work, Bohn's edn. vol. IV: 73

through concentration and compact grouping. They listened to the libertarian gospels of Kabir, Tulsidas, Dadu, Raidas, Nanak etc. putting cordial devotion over restrictive codes and formalistic ritualism. They realized that they could be pious without being *brahmans* or brahmanical. They could realise God within, without visiting temples. Their thinking was thus spontaneous, genealogically inherited without any meditative intellect or critical dialectics. They could even sniff and scoff at orthodox rigidities. This wisdom filled them with perennial wit and a satirical sense of humour, as is evident in the proverbs, which are so full of salt and ironical sting.

The craftsmen have left behind them no written record of their personal thoughts and feelings. In an attempt to reconstruct their 'mind set', 'values', 'world view', the literature of the contemporary monotheistic teacher-Kabir and the oral traditions represented by the proverbs, popular sayings, folk songs, folk tales, rituals, and traditional customs which are current even today, could be used as an adequate source material. They act as a 'point of entry' into the mental world of the craftsmen and lead us to probabilities.[83] In the face of the absolute paucity of sources on these obscure areas of past experiences the *bhakti* literature and proverbs help to probe and illuminate the 'mentalities' and behaviour of the craftsmen, the socio-economic ethos of the craft communities.

---

83 Vijaya Ramaswamy, 'Weavers Folk Traditions as a Source of History', *IESHR*, Vol. XIX, No. 1, 1982.

Keeping in mind the mass and more specifically the artisanal following of the *bhakti* leaders, a study of the thoughts and attitude of the medieval *bhaktas* on the society and state assumes importance to determine the current popular consciousness.[84] The most prominent *bhakta*- the poet of the oppressed, himself belonging to the lower caste of weavers, Kabir-was an important mouthpiece of popular attitudes towards state and society. His writings display militant iconoclasm including scathing attack against brahmanical pride, caste prejudice, religious obscurantism, untouchability as well as against the dogmatism he perceived within Islam. The monotheistic Bhaktas spearheaded the movement for equality with the upper castes not by seeking mythological origins or claiming ritual privilege but by a total negation of caste. Kabir rejected caste thus:

'It is needless to ask of a saint, the caste to which he belongs. For, the priest, the warrior, the tradesmen, all the thirty-six castes alike, are on a search for God. The barber has sought God, the washerman and the carpenter. Even Raidas was a seeker after god'.

---

84 The idea of the Bhaktas as representative of Popular consciousness is dealt with by Harbans Mukhia, 'Ideology of the Bhakti Movement, The Case of Dadu Dayal' (ed.) *History and Society:* 445; The nature of participation of the professional and artisan classes in the Bhakti Movement in Northern India has been discussed by Irfan Habib,. 'The Historical background of the monotheistic Movements of the 15-17th centuries', Seminar on Ideas - Medieval India, University of Delhi, 1965, Mimeo.

"No one know eth the mystery of me, the weaver

Though the world cometh to me to get the cloth woven

When ye folks hear the Vedas and Puranas.

Then I see that whole creation stretched out like the Lords workshop

Of the earth and the sky the Lord hath made a loom

and the Sun and the Moon the warp and woof

so I pray and my mind is pleased with the Lord

and I, the weaver, realized the Lord within my own home.

Sayeth Kabir: when the loom breaks

then the thread merges in the thread of the world."

The monotheistic *bhaktas* emphasized that man's personal virtues alone, and not his caste, entitle him to call himself human;

"The whole universe is the creation of Brahma

Tell me, O Pandit, since when have Brahmins been created.

Don't waste your life by crying (that you are a) Brahmin at every step,

If you are a Brahmin because a Brahmin woman gave birth to you, why are you Brahmin and why are we Sudras?

Kabir says that (the man) who really worships Brahman,

we call only him the (true) Brahmin."

Sometimes Kabir words his social protest even more directly- Through the religious colouring of his poetry rings the clear voice of a toiler's passionate condemnation of social and economic inequality.

"They who wear dhotis of three and half yards, and three fold sacred cords

And display rosaries on their necks and in their hands are the polished jugs;

They are the cheats of Benaras, and not the saints of the lord.

I can not respect such saints

who devour trees along with all their boughs

They scour their vessels before placed on the hearth

and wash the wood before it is lighted

and digging out the earth they make double fireplaces.

But devour the whole man they

They live as sinners and transgressors

yea, they abide ever in ego and all their kindreds are drowned with them.

They follow the lead of their minds and so do the deeds."[85]

Here Kabir expresses the mood and sentiments of all people, whose lot was equally hard, whether they lived in the region of the upper Indus or in the Ganges valley. The *Kabir Panth*, *Nanak Panth* and *Daria*

---

85 Translated by I.D. Sereberiakov 'The Poetry of Weavers and Tanners' D.P. Chattopadhyaya (ed.) *Indian Studies Past and Present*, vol. VIII, 1966-7: 194.

Panth, represent the earliest anticaste movements in Bihar. Their influence remained confined to small pockets here and there and amongst the untouchables and artisans. The influence of Brahmanism was so pervasive that they could not make any headway.[86]

The craftsmen like any other member of the community were subject to all the prejudices and psychological pressures which society brings to bear on the individual. Besides the literature of the monotheistic *bhaktas*, the proverbs give expression to sentiments on social relationships, which have a direct bearing on the structural setting of society. They reflect tensions present in the social structure and by giving an institutionalized expression to them provide a healing touch.[87] They constituted a clearance house of social realities and norms. Vendetta against the upper caste was purged through gibes and mockaries. Tensions were thus relieved as they felt that they were quits with the social-ups through caluminous proverbs. The proverbs thus convey a vivid expression of the anxieties, the troubles,

---

86 Today, the *Kabir Panthis* have an important *Math* (monastery) at Dhanauti in Saran, which was established by Bhagodas, who was the first compiler and editor of *Kabir Beejak*. The *Daria Panthis* who owe their origin to Daria Saheb, an eighteenth century Ujjainia poet-ascetic from Dharkandha village of Shahabad, have remained limited in number.

87 Surajit Sinha, 'Expressions of Sentiments in the Songs associated with the Karma festival of rural Manbhum', *Man in India*, vol. 37, No. 1, Jan-March, 1957: 34.

annoyances and the humours of the daily life of the craftsmen.[88] They reflect the economic condition of the caste for eg, lack of economic security. They represent popular notions, the fruits of popular experience and common sense of all ages.

Most of the proverbs relating to *sonars, darzis, telis, gwalas, gareris* are not only current but factualistic even today. The *sonars* continue to steal gold and mix alloy; the *telis* or oil crushers continue to pinch the oil cake by theivishly crushing the cakes for oil themselves. The *darzis* continue to steal cloth. Thus proverbs are based on keen observation and experience of generations.

The first question that relates to the proverbs is their origin. They are of a pell-mell character confusing the possible authorship. They are equivocational and speak both ways. They praise and at the same time pour contempt. They spare none neither *brahmans* nor ascetics and yogis. They are equally mockful about craftsman like barbers, *darziz, chamar, churihars, dom,* oilmen, carders, weavers etc. The *brahmans* receive an abundant measure of derisive sting and ironical shafts. They are therefore not the specific coinages of *brahmans* or the privileged upper caste wits. The latter cannot be expected to propagate against their own self-respect and prospects,

---

[88] Risley, *People of India*: 130.

prestige and reputation. Each lower caste living by craft, cultivation or trade vented its grudge and phrazed its oblique opinion for ludicrous on ridiculous ends at one another. The proverbs constitute a merry miscellany of traits typical of a community or a class of professionals.

The proverbs are popular, naive, predominantly rural and sound like satarical match of mutual fun making and mud slinging in which there is general participation. The *sonars* and *lohars* could get even with one another through these proverbs so also the oilman, *darzis*, and weavers. The priests could have a compound dig at all these caste and the lower caste would put them to blush with the popular summations of *brahmans* hypocrisy, greed and lustfulness.

The proverbs typify generic professional traits as the stamp of a culture that is essentially corporate—corporate not in the organized guild sense but in the caste based traditional sense. This culture is one of innocent puerile vanity. "One stroke of a blacksmith is worth a hundred strokes of a goldsmith".[89] Thus could the goldsmith return their 'tit' for the *lohars* 'tat' when the goldsmith said "the *lohar* is a bad friend; he will either burn you with fire or stifle you with smoke".[90] Even the blacksmith's shop is always an untidy mess and

---

89 Risley, *People of India:* 137.

90 *Ibid:* 134

pet 'maina' is said to mimic the noise of a hammer.[91] The dirty living of the *kamar* is the theme of the proverb, which takes a dig at the *kammatan's* cloth – "So thin that the hair on his legs show through and so dirty that it will not burn".[92] Similarly, the *kumhars* or the potters imitated the vanity of the affluent and wanted to keep their brides in aristocratic seclusion. But economic compulsion and professional needs drove them to come out of the *purdah* so that a proverb says, "The potter's bride must come to the kiln"; "Sooner or later the potter's daughter-in-law must come to the refuse hearth".[93] Polygamy was a regular practise. The poor *kumhar* unable to calm or quell the pugnacious wives went in for vicarious and punitive ear twisting of this donkey's ears. Similarly, even *churihars*, the bangle makers could forget his low position in the rare satisfaction of squeezing "a girl's arm under her husband's nose" even in rich households.[94] There were illicit liaisons between members of different castes too as is evident in proverb "Mother an oil women, father a *mali*, the son a Mohammedan and calls himself Sujan Ali". [95]

---

91 *Ibid:* 137

92 *Ibid:* Appendix I, 315

93 *Ibid:* (Appendix I), 315

94 *Ibid.*

95 *Ibid:* (Appendix I), 316

The stupidity of the weaver (*jolaha*) is the staple subject of proverbial philosophy. His loom being sunk in the ground, he is said to dig a pit and fall into it himself. There is plenty of laughter and scorn expressed for the *jolaha* in the proverb which tells how out of twelve *jolahas*, the twelfth went to bury himself as he did not count himself as one of the twelve. The *jolahas* harboured pitiful ambitions like leaving their loom for hunting, travelling and setting up a farm. The *jolahas* and *dhunias* were easily self pleased. Even if they earn a potful they feel like *rajahs*. Their secret ambition was to turn to agriculture-a wish frustrated for want of necessary capital. The *jolaha* found the hind peg of a plough and wanted to start farming on the strength of it. Agriculture was therefore thought to be more prestigious.[96] Their harsh existence led to scant regard for the niceties of religion and scriptures, for a *jolaha* on hearing the *koran* burst into tears for the waggling tail of the *mullah* reminded him of a favourite goat that he had lost![97] "The goat of a weaver and given to viciousness!"[98] The quite, humble, forbearing weaver, the butt of all and the typical fool of the Indian society was the most inoffensive of human beings. His goat of all the creature in the world. ought to be the most inoffensive! '*Id* without weavers'. The *jolahas* took the

---

96 Risley, *People of India*: 136-37

97 *Ibid*: 136

98 John Christian, *Behar Proverbs*, London, 1891: 133-136

occasion of *id* to indulge in uproarious merriment by drinking toddy. The *id* is a solemn festival in which good Mohammedans never drink.[99]

The upper caste sermons, on going to hell for vices done or to heaven for virtues practiced fell flat on the ears of the *sonars, darzis, telis*, weavers and other craftsmen. They were lost to scruples and resorted to strangulation for pettiest gains. The proverbs relating to Barbers, weavers, *chamars, doms*, goldsmiths are full of digs at their cunning, impurity and unscrupulousness. These must have been bandied about in settling scores with one another—a game in which upper castes too participated. Of the *sonars* it is said "Break up old ornaments, bring new ones and the *sonar* is happy", "A *sonar* will rob his mother and sister, he will filch gold even from his wife's nose ring"[100]. Of the *hajjam* it is said that he is as deceitful among men as crows among birds.[101] As a workmen the *jolaha* too is dilatory and untrustworthy. He will steel a reel of thread when he gets the chance; he has his own standard of time; he lies like a *chamar.*[102]

---

99 Christian, *Bihar Proverbs*: 135-136

100 Ibid: 134.

101 *Ibid:* 13

102 *Ibid:* 137

The *bania*, moneylender, grain dealer dominated the material world of the craftsmen and he figures prominently in the proverbs. "A *bania's* heart is no bigger than corriander seed". 'He has the jaws of an alligator and a stomach of wax; He is less to be trusted than a tiger, a scorpion or snake; he goes in like a needle and comes out like a sword'. The unscrupulous practice of the *bania* found expression thus—"The *jat's* wife soaked her yarn (to make it heavy), but the *bania's* weights were light. The cloth cut price; the weaver cut the width". 'Scales with a long beam and short strings, and a *ser* that weighs only three-quarters. By these you may know the trueborn *bania'*. 'A *bania* and drum are made to be beaten'. He uses lightweights and swears that the scales tip themselves. He keeps his accounts in a character that none but God can read; if you borrow from him your debt mounts up like a refuse heap or gallops like a horse. He is so stingy that the dog starves at his feast, he scolds his wife if she spends a farthing on beetle nut.[103]

The proverbs are devastating in pouring contemptuous venom against the *brahmans* for the pious Hindu's life was ever overshadowed by the exactions of the *brahman*. The sanctimonious humbug of the professional priest is ridiculed. The latter was "a thing with a string around its neck" (a profane hit at the sacred thread); "a

---

103 *Ibid:* 131-132, Appendix I: 311- 312

priest by appearance, a butcher at heart". In another proverb the *brahmans* is bracketed as a bloodsucker with bugs and fleas. He is also compared to a vulture on the lookout for corpses to earn his funerel fees. He is upbraided for flaunting a rosary and hiding a knife; chanting the divine song, exhorting others but sinning himself. Another proverb redicules the *brahmans* for "washing his sacred thread but not cleaning his inner self" There is a gibe at priestly infallibility and popular credulity in the proverb "Be the *brahman* ever so vile, he still rules the three worlds". A more scathing sarcasm burns in the proverb. "The absent minded *brahmans* ate beef and said "By God, never again"! "Three *kanaujias* and thirteen fire places" is still typical of brahmanistic caste sub-division. "The *brahman* will beg even if he has a lakh in his pocket" says another proverb. It is obvious that such proverbs were authored, popularized and relished by lower castes to which the craftsmen belonged.[104] They articulate the feelings of the craftsmen.

A major dimension in a craft person's identity to be noted is that of gender. The majority of the craftsmen were male—logically the world of the craftsmen was an aggressively male one. Hence an attempt has seen made to conceptualize the problem of the traditional division of labour between sexes in different crafts. The data collected

---

104 *Ibid;* 131.

suggests that there were:

i) Crafts in which women fully participated like spinning, basket making, bamboo work, mat making.

ii) Crafts in which women were partly engaged as assistants to men like pottery and blacksmithy.

iii) Crafts that were the sole realm of men in which women were not allowed to participate at all like cocoons rearing, weaving, carpentry, gold smithy, and copper smithy.

The division of labour according to gender has been generally explained on a two fold basis—Functional-women were engaged in sedentary work requiring maximum possible exertion, and making less use of tools; Ritualistic-the lower the ritual rank of the craft, the more the women participated in the craft, one major exception being spinning, No high caste women were considered degraded by spinning.

A major and interesting point of reference in the gender participation could be the deep connection between myths and crafts, reinforced by the ritualization and attribution of religiosity to the craft usages. This was reflected in the strict adherence to certain rules of purity and the belief that infringement of these rules would destroy the success of their crafts operation. These rules totally excluded the

participation of women from certain crafts as impure. Thus the breeders of silk worm considered the silk cocoons as something akin to sacred, and held them in religious awe. Women were not allowed to even approach the place of rearing of the silk worm. Touching the eggs or performing any act in connection with them was always done by men alone and only after ceremonial purification and while fasting. While employed in this work the men totally abstained from the company of their wives or from any sexual gratification. The low castes were also excluded as their appetites were defiled by the gross impurity of animal food. They were also not permitted to employ the washerman or the barber. The breeders observed dietary restrictions too. They did not drink any wine, abstained from eating meat, fish, onion, garlic, tamarind and turmeric. They ate sparingly once a day, their diet being of rice cleaned without being boiled (*alwadhan*) and seasoned only with vegetables. After the cocoon had been gathered the rearers were released from the ritualistic taboo they had so rigidly observed.[105] Similarly, the wife of the blacksmith could help her husband in operating the bellows. However, she did not touch the forge or the fire, which is invariably said to be Mother Goddess Kali. For the goldsmith, gold is equivalent to goddess Lakshmi. Though

---

105 Martin Montgomery, *Eastern India*, vol. II: 157. Similar practices among the cocoon breeders have pointed out by K. A. Razaq, "Sericulture in Manbhum and Associated Observances' *Man in India*, vol. 39, Jan-March, No.1, 1959.

copper is the principle raw material of the coppersmith he mostly works with an alloy called *panchloha, which* means an alloy of five metals. The coppersmiths call the alloy a holy one because they consider it to be representative of the Universe (*brahmanda*). Both the goldsmithy and the coppersmithy crafts exclude the women from their operations. The potter women could assist their husband in certain stages of the crafts like kneading the clay or collecting the fuel. However she was not allowed to use the potter's wheel or the potter's oven or kiln. The potter's kiln or oven is considered a form of goddess Kali. The socket of the wheel is seen as Parvati, the pivot as Siva, and the turning stick as Siva's trident.

It can be suggested that the well-defined gender based division of labour was an empirical manifestation of the intermingling of mythical ideas, religious awe and crafts usages of the craftsmen. However even within the division of labour a definite pattern of relationship had emerged as a result of the family functioning as a workgroup. This idyllic companionship in work is described in the traditional songs of the *agoria*, the blacksmiths of Lohardaga. In one of the songs the boy sings to the girl—

"Come to the forest and cut a green tree,

Come to the furnace and blow the bellow for me".

Another songs says —

> "She presses down the bellows with the strength of her heels.
>
> He wields the hammer with all his might."

CHAPTER IX

CONCLUSION

Our understanding of the crafts of Bihar in seventeenth and eighteenth centuries, evidently suggests that the trend in the aggregate demand for the manufactured goods was almost certainly upwards. The craft sector was marked by an exceptional buoyancy. With the establishment of the rival European Companies in the seventeenth century the export of silk and cotton textiles, saltpetre and indigo from Bihar had received an impetus. In the East India Companies the craftsmen had found a new patron who had created a new, large, and varied demand. An expanding market engulfed Bihar and in this the role of the craftsmen remained predominant. The weavers, dyers, indigo manufactures. metallurgist, saltpetre workers tried to "relocate" themselves amidst the growing demand and a more aggressive pursuit of markets.

However the attempt at 'relocation' by the craftsmen, the new adaptations, the move towards fresh economic opportunities, was within the parameters of continuity. The pattern of change can be best expressed in paradoxical terms as 'static expansion'[1] or a

---

1 J. H. Boeke, *The Structure of the Netherlands Indian Economy*, New York, 1942.

'peculiar pattern of changeless change'[2]. This process of change was slow and imperceptible. The capacity of the society to adjust and absorb change was so strong that it made change appear virtually insignificant.

The first glaring paradox of continuity and change was that while the craftsmen in Bihar were responsive to a new pattern of consumption, in a large and expanding market, it is doubtful if they also made a major shift from production for isolated, small scale rural markets. Even here they remained geared more to reciprocal arrangements and the traditional system of intra community bonds than to a specialized factory oriented production with high profitability. Production in Bihar continued to be based on the co-existence and interpenetration of subsistence and commercialized sector. Despite the growing market, commercialization and growing rural-urban links, the artisans remained bound by the system of reciprocal obligations (*Jajmani* system). As late as 1901 the Census Village Survey Monograph on Village Parba in Sridega Subdivision, district Ranchi, established that the *Jajmani* System still prevailed here with regard to the supply of ploughshares in the village. The families in the village were apportioned between the *lohars*. Cash payment was not made for supply of ploughshare but an annual remuneration of 10 *seers* of paddy for each plough was fixed. It was

---

2 C. Geertz, *Agricultural Involution*, Berkeley, 1963.

only by 1907 that the agriculture implements other then ploughshare were placed outside the ambit of the *Jajmani* system and were sold in cash. Similarly, the *chick baraik* was given spun yarn by the villagers for weaving and he was paid a fixed quantity of grain depending on the size of the articles woven.[3]

The increasing connection of the artisan with the market did not disturb the socio-economic structure which continued to be woven around the land. Agriculture continued to be the biggest source of livelihood and social surplus. The craftsmen were still a part of an agriculture class structure in which they were largely tenants and/or labourers also, as their traditional craft occupations did not yield sufficient income for their maintenance. They sustained themselves party by agricultural output and party from their professional earnings.

While the demarcation between agriculture and the manufacturing sectors continued to remain blurred, the highly augmented demands for crafts in the 17th and 18th centuries was catered through a continuous proliferation of artisan castes each attending to increasingly minute processes of the production of an increasingly narrow range of goods. Before the Europeans, trade in

---

3 *Census of India*, Vol. IV, *Bihar*, Part VI, *Village Survey Monographs*, No. 9, *Parba*: 31-32.

textiles was erratic, seasonal and highly unpredictable. It shared the quality with other aspects to traditional Asian trade.[4] In such a demand situation the weavers had worked at leisure and weaving was carried on side by side with the cultivating of fields. The increased and regular demand by the entry of the Europeans into the market created steady work for the weaver. The orders placed with him by merchants were enhanced and regular and involved his devoting more hours of labour per day on his loom. This meant that the weaver would now have to move away from agriculture and devote his energy exclusively to weaving. His specialization was now based on product differential as well as market orientation. The weaver decision to shift from subsistence living to increased specialization and the use of capital was vital. As they moved into whole time weaving they became conscious of the overhead expenses concerning maintenance of looms and tools, thread and other raw materials, perquisites to pay their labour. All these needs required capital to be provided in advance of the returns that could be expected after production. S. Arasaratnam,[5] asserts, "the weaver had now to be, more than even before, a man of credit or dependant heavily on available sources of credit".

---

4 The unpredictable and seasonal character of the Asian trade has been commented on by A. Das Gupta, *Indian Merchants and the Decline of Surat 1700-1720*, 1979:10-12.

5 S. Arasaratnam, 'Weavers, Merchants and Company: The Handloom Industry in South-Eastern India, 1750-1790', in Sanjay Subrahmanyam (ed.), *Merchants, Markets and the State in Early Modern India*, New Delhi, 1990: 196.

The response of the craftsmen was further evident in that the weaver adjusted his loom for greater standardization of cloth, which was the primary requirement of the European market. The textile craft depending on local markets had little need for standardized output. Paradoxically, this response to the market stimuli destroyed the creativity of the craftsmen, since the Company's injunction was to make them work, 'to the perfection of the pattern'. The European market, highly specialized in terms of quality, texture, prints and measurements deprived the weavers' of their personal initiative.

The expansion in production to meet the augmented demand was not met by fundamental innovations in technology. The technology continued to remain crude, primitive and of an elementary character. The technical equipment-spinners *charkha,* weavers loom, metal workers furnaces and bellows in the iron works conformed to the technology existing at the pan-Indian level admitting practically no regional variations. Production remained based on manual dexterity rather than technological innovations. "A fine balance had been evolved between the use of implements and human dexterity. The technical process embodied in the Indian crafts in the seventeenth and eighteenth centuries had reached the asymptotic limits at the end of a logistic growth curve.

The pace of mobility movement was accentuated for the craftsmen. The increase in output was achieved not by higher productivity but by expanding the labour force. High cost labour could be easily substituted by low cost labour moving from one region to another. Thus the scope for alternative job opportunities of different functional castes including the agricultural castes must have been enlarged. The upward trend in the demand was met by picking up the slack in the economy—by drawing in more labour force to the industry, turning more part time workers in full time activity and to some extent by increasing the individual output.

Yet the occupational and social mobility of the craftsmen was within a social system with had evolved through centuries long evolution, which included the traditional matrix for all economic activities. This placed all the producers of goods broadly in the same rung of the ladder with a further hierarchical subdivision of occupation in terms of the relative ritual cleanliness and them divided them horizontally into so many hereditary occupations. Despite the mobility of the craftsmen their mental horizons were narrow, consciousness primordial and natural relationships were determined by the kind of ties the people had with land and by tradition. The institutions of society and government exerted a downward pressure on the producer-artisans holding him firmly to his place on the lowest rungs of the social and economic ladder.

In Bihar the crafts sector had expanded as far as it could by the beginning of the eighteenth century within the framework of the existing social and economic structure. With the expansion in exports the weavers had become more cash oriented. Their standard of living was tied more closely to the movement of prices in those commodities essential to then work and livelihood. However the weavers retained his independence in that he was still in control of the means of production. All that he lacked was capital and an independent access to the market.

Max Weber in his analysis of economic change had posed two extremes of pre industrial craft production-the "price worker" and the "wage worker".[6] In Bihar both the characteristics were found in the weavers. He appeared to be an independent 'price worker' since despite his dependence on the merchant for advances he bought his own raw materials, owned his tools and sold his products in a considerably independent way. But with the specialization of market and restrictive demand, the weavers would find himself increasingly surrounded and curtailed by terms and conditions, reducing him to a 'wage worker'. As a wage worker he would not possess raw material and tools but only brought to his market his labour power.

---

6 Max Weber, *General Economic History*, tr. by Frank H. Knight, New York, 1961: 99-101. quoted in S. Arasaratnam, 'Weavers, Merchants and Company': 213.

The impact of crafts in Bihar represented more a case of 'rurbanization' rather than 'urbanization'. Even while the period was one of a buoyant commercial economy, and the craftsmen showed adaptability and capacity to respond to market stimuli, yet the growing ties between the craftsmen with the commercial and money transaction did not manifest itself in urbanism and urbanity. This was perhaps because the crafts of Bihar continued to be basically rural, domestic and diffused in character. The occupational pattern of Bihar in 1891 census showed that the people engaged in production and supply of material substances i.e. silk, cotton wool, fur, lac etc. represented 11.8 percent (32, 30, 722) of the total population and that in pasture and agriculture was 61.24 percent (1, 66, 54, 655) J. A. Bourdillon, commented 'This swarming crowd was all most entirely agricultural in the sense that it was non manufacturing'.[7]

Conclusively, the response of the craftsmen to the increasing competition remained an uneven or unequal one. Adaptations did happen but the craftsmen adopted with different degrees of success. This precludes the possibility of charting with accuracy the direction of changes. Decay and growth were both present and they characterized the craft dynamics of Bihar.

---

7 J. A. Bourdillon, *Census of India, 1891*, Calcutta, 1893: 647-92, 173-72.

BIBLIOGRAPHY

A. PRINTED SOURCES

1. *Persian Works*

Abdullah, *Tarikh-i Da'udi* (ed.), S.A. Rashid. Aligarh, 1954.

Abu'l Fazl, *Akbar Nama* (ed.), Agha Ahmad Ali and Maulvi 'Abdu'r Rahim, 3 Vols. Bib. Ind., Calcutta, 1873-87.

Abu'l Fazl, *A'in-Akbari* (ed.), H.S. Jarrett, revised by Jadunath Sarkar, Vols. II and III, Calcutta, 1949 (Vol. II), 1948 (Vol. III).

Badauni, 'Abdul'l Qadir, *Muntakhabu't Tawarikh* (ed.), Ali, Ahmad and Less, Bib. Ind., Calcutta, 1864-9.

Jahangir, *Tuzuk-i Jabangiri* (ed.), Syud Ahmud, Ghazipur and Aligarh, 1863-4; trans. A. Rogers and H. Beveridge. 2 Vols., London, 1909-14.

2. *Works in European Languages*

(a) Published Records

Bengal Board of Trade (commercial) Consultation, 10th September 1819 and 2nd September 1820.

Calendar of Persian Correspondence, Vol.10 (1792-1793), National Archives of India, New Delhi.

Datta, K. K. (ed.), *Fort William-India House Correspondence*, Vol.1, (1748-56), Delhi, 1958.

Sinha, H. N. (ed.), *Fort William-India House Correspondence*, Vol.II, (1764-66), Delhi, 1962.

Sinha, N. K. (ed.), *Fort William-India House Correspondence*, Vol.V, (1767-69), Calcutta, 1959.

Foster, W. (ed.), *The English Factories in India* (1618-69), Oxford, 1906-27.

Temple, R. C. (ed.), *The Diaries of Streynsham Master*, 2 vols., London, 1911.

Willson, C. R. (ed.), *The Early Annals of the English in Bengal, Being the Bengal Public Consultations for the First Half of the Eighteenth Century*, Vol.1, *Bengal Public Consultations 1704-1710*, London, 1895.

BIHAR STATE ARCHIVES, PATNA

Muzaffarpur Collectorate Records – Letter from Collector of Tirhut to the Secretary to Government, 4th February 1788.

Letter from Collector of Tirhut to the Board of Revenue, 27th October 1794.

Letter from Collector of Tirhut to Messers Finch and Culloden, Indigo Planters at Shahpur Bondy, 1800.

Letter from Collector of Tirhut to the Revenue Board Member 18th October, 1810.

Purnea Collectorate Records

Letter from Collector of Purnea to Board of Revenue, 30th October, 1802.

Tirhut Districts Records (1782-1833), Vol.187, Vol.189.

b. *Travellers' Accounts, Pamphlets and other Contemporary Sources*

Bernier, Francois, *Travels in the Mogul Empire*, A.D.,*1656-1668* (ed.), and trans. A. Constable, London 1891.

Bolts, William, *Considerations on Indian Affairs, Particularly Respecting the Present State of Bengal and Its Dependencies*, London, 1772.

Bowrey Thomas, *A Geographical Account of the Countries Round the Bay of Bengal, 1669 to 1679* (ed.), R.C. Temple, Cambridge, 1905.

Buchanan, Francis., *An Account of the District of Purnea in 1809-1810*, Patna, 1828.

—————— *An Account of the District of Bhagalpur in 1810-1811*, Patna, 1839.

—————— *An Account of the District of Bihar and Patna in 1811-1812*, Vol. 1-2, Patna 1825.

———— *An Account of the District of Shahabad in 1812-1813*, Patna, 1834.

De Laet, John, *The Empire of the Great Mogol: A Translation of De Laets Description of India and Fragment of Indian History*, Trans. J. S. Hoyland and S. N. Banerjee, Bombay, 1928.

Fitch, Ralph, *Raph Fitch, England's Pioneer to India and Burma (1583-91)* (ed.), J.H. Ryley, London, 1899; also printed in Foster, W. (ed.), *Early Travels in India, 1583-1619*, London, 1921, 1-47.

Fryer, John, *A New Account of East India and Persia being Nine Year Travels, 1672-81* (ed.), W. Crooke Vol. I, Hakluyt Society, 1909.

Foster, W., *Early Travels in India 1583-1619* (Accounts of Ralph Fitch, William Finch), London, 1921 (photo-offset edn), Delhi, 1968.

Hodges, William, R. A. *Travels in India during the year 1780, 1781, 1782, 1783*, London, 1793.

Manrique Fray Sebastian, *The Travels of Fray Sebastian Manrique* (1629-1643), trans. C. E. Luard and H. Hosten, 2 Vols., Hakluyt Society, 1927.

Manucci, Niccolao, *Storia do Mogor, or Mogul India 1653-1708*, trans. W. Irvine, 4 Vols. London, 1907-8.

Montgomery, Martin, R., *The History, Antiquities, Topography and Statistics of Eastern India, Comprising Districts of Behar, Shahabad, Bhagalpoor,Goruckpoor, Dinajpoor, Puraniya, Rungpoor and Assam in Relation to their Geology, Mineralogy, Botany, Agriculture, Commerce, Manufacture etc.* Vol. 1-3, London 1838.

Mundy, Peter, *The Travels of Peter Mundy*, Vol. II, *Travels in Asia*, 1628-1634 (ed.), Richard Carnac Temple, Hakluyt Society, 1914.

Orme, Robert, *Historical Fragments of the Moghul Empire*, London, 1805.

Pelsaert, Francisco, *Jahangir's India: the Remonstrantie of Francisco, Pelsaert*, Trans. and (ed.) W. H. Moreland and P. Geyl., Cambridge, 1925.

Renell J., *Memoir of a Map of Hundoostan or the Mogul Empire: with an Introduction illustrative of the Geography and Present Division of that Country*... London, 1792.

Stavorinus, J. S., *Voyage to the East Indies,* Vol. I, London, 1798.

Tavernier, Jean Baptiste, *Tavernier's Travels in India (1640-67),* trans. V. Ball (ed.), W. Crooke, 2 Vols. London, 1889.

Thevenot, Jean de, *Indian Travels of Thevenot and Careri* (ed.), Surendranath Sen, New Delhi, 1949.

C. *Secondary Works*

Ahmad, Qeyamuddin, 'Commercial Cum Political Activities of the Patna Factory of the East India Company 1707-1739', *Journal of the Bihar Research Society,* Part I-IV, Jan-Dec, Patna, 1976: 168-183.

——————— 'Aspects of Historical Geography of Medieval Bihar' Vol. 15, No. 1-2, *Indian Historical Review,* Patna, 1976.

——————— (ed.), *Patna Through the Ages. Glimpses of History, Society and Economy,* 1988.

Alam, Ishrat, 'New Light on Indigo Production Technology during the Sixteenth and Seventeenth Centuries' in, A. J. Qaisar and Som Prakash Verma (eds.), *Felicitation Volume in Honour of Professor S. Nurul Hasan . Art and Culture,* Jaipur, 1993.

Arasaratnam, S., ' Weavers, Merchants and Company: The Handloom Industry in South-Eastern India 1750-1790', *Indian Economic and Social History Review,* Vol. XVII, No. 3, Delhi, 1980: 257-81.Also in Sanjay Subrahmanyam (ed.), *Merchants, Markets and the State in Early Modern India, New Delhi,* 1990.

Art in Industry Through the Ages. Monograph Series on Bengal, New Delhi, 1975.

Askari, S. H., and Ahamd, Qeyamuddin (ed.), *The Comprehensive History of Bihar,* Vol. II, Part II, Patna, 1987.

Baines, E., *History of Cotton Manufactures,* London 1835.

Ball, *Manual of the Geology of India,* Vol. II.

Banerjee, N. N.,' A Monograph on Dyes and Dyeing in Bengal', *Art in Industry Through the Ages, Monograph Series on Bengal,* Delhi., 1975.

Barlow, A., *History and Principles of Weaving,* London, 1878.

Bengal District Gazetteers — O'Malley, L.S.S., Darbhanga, Calcutta, 1907; *Muzaffarpur*, Patna, 1907; *Santhal Pargana*, Calcutta, 1910; *Singhbhum, Saraikela, Kharsewan, Calcutta*, 1910; *Purnea*, Calcutta, 1911; *Gaya*, Patna, 1919; *Monghyr*, Patna, 1926.

Byrne, J., *Bhagalpur*, Calcutta, 1911.
Coupland, H., *Manbhum*, Calcutta, 1911.
Hallette, M. G., *Ranchi*, Patna, 1917.

Beteille, Andre, 'The Indian Village: Past and Present:' in EJ. Hobsbawn, Witold Kula, Ashok Mitra, K.N. Raj, Ignancy Sacks (eds.), *Peasants in History: Essays in honour of Daniel Thorner.*

Bhadra, Gautam, 'Silk Filature and Silk Production: Technological Development in the Early Colonial Context 1768-1833' in Deepak Kumar (ed.), Science and Empire Essays in Indian Context 1700-1947, Delhi, 1991.

Bhardwaj, H. C. and Jain, K. K., 'Indian Dyes and Dyeing Industry during the 18th and 19th Century', *History of Indian Science and Technology in India.*

Bhargava, Meena, *State, Society and Ecology. Gorakhpur in Transition 1750-1830*, Delhi, 1999.

Bhattacharya, Sabhayasachi, 'Cultural and Social Constraints on Technological Innovation', *Indian Economic Social History Review*, Vol. 3, Part III, Delhi, 1964.

Bhattacharya, Sukumar, *The East India Company and the Economy of Bengal from 1704 to 1740*, London, 1954.

Bhatt, G.S., 'The Chamars of Lucknow', *The Eastern Anthropologist*, Sept-Nov, 1954, Vol. VIII, No. 1: 27-41.

Bihar and Orissa District Gazetteer, L.S.S. O'Malley, *Monghyr*, Patna, 1926.

Birdwood, J.C.M., *Industrial Arts of India*, London, 1887.

Bose, D.M., Sen, S. N., and Shubharayappa, B. V. (ed.), *A Concise History of Science in India*, Indian National Science Academy, New Delhi, 1972.

Bose, N. K., 'Impact of Changing Technology in Society', *Economic Weekly*, No. 13, 11-18 March, 1961.

Bose, Pradeep Kumar, 'Production Organization and Market Relations of Potters of Gujrat', *Man in India,* Vol. 62, No. 3, Ranchi, Sept. 1982.

Bourdillon, J. A., *Report of Census of Bengal, 1881,* Vol. I, Calcutta, 1833.

Braudel, Fernand, *Civilization and Capitalism, 15th-18th Century, The Structure of Every day Life,* Vol. 1, 1982.

Brenning, Joseph, J., 'Textile Producers and Production in late seventeenth century Coromondal', in Sanjay Subrahmanyam (ed.), *Merchants, Markets and the State in Early Modern India,* New Delhi, 1990.

Brouwer, J., 'A Matter of Liminalities: A Study of Women and Crafts in South India', *Man in India,* Ranchi.

Burford, Alison, *Craftsmen in Greek and Roman Society,* London, 1972.

Carey, W., *The Good Old Days of the Honourable John Company,* Vol. II.

Census of India, Vol. 4, *Bihar,* Part VI, *Village Monograph Survey.*

Chakroborty, Bhabesh, 'Castes in Chotanagpur Villages, *Bulletin of the Cultural Research Institute,* Vol. VIII, No. 3-4, Scheduled Caste and Tribes Welfare Department. Govt. of West Bengal, 1969.

———————— 'Vanishing Crafts of Artisans of Chotanagpur', Bulletin of the Cultural Research Institute, Vol. IX, No. 3-4, 1972.

Chandra, Satish, *Medieval India From Sultanate to the Mughals Part Two. Mughal Empire (1526-1548),* Delhi, 1999.

Chatterjee, Ruma, 'The Tasar Silk Industry in India and Its Decline in Bengal and South Bihar, 1872-1921', *Indian Historical Review,* Vol. XVII, No. 1-2, Delhi, July 1990-Jan. 1991 .

Chaudhuri K. N., 'The Structure of the Indian Textile Industry in the Seventeenth and Eighteenth Centuries', *Indian Economic and Social History Review,* Vol. II, June-Sept., 1974, Delhi.

Chaudhuri Sushil, 'Financing of Investment in Bengal', *Indian Economic and Social History Review,* VIII 20, 1917, Delhi, 1975.

——————— *Trade and Commercial Organization in Bengal*, 1650-1720, Calcutta, 1975.

——————— Textile Trade and Industry in Bengal Suba 1650-1720, *Indian Historical Review.*

——————— *From Prosperity to Decline, Eighteenth Century Bengal*, New Delhi, 1995.

Chadhury, R. K., *Mithila in the Age of Vidyapati*, 1976.

Chicherov, A. I., *India: Economic Development in the 16th - 188th Centuries. Outline History of Crafts and Trade*, Moscow, 1971. Original Russian edn, Moscow, 1965.

Chritian, John, *Behar Proverbs*, London 1891.

Collins, E.W., *Report on the Existing Arts and Industries of Bengal*, Culcutta, 1820.

Coomarswami, Anand, K., *The Indian Craftsman*, London 1909.

——————— *The Arts and Crafts of India and Ceylon*, Madras, 1912.

Dain, J.R., *Report on the Tasar Rearing Industry in Bihar and Orrisa.*

Dalton, E. T., *Descriptive Ethnology of Bengal*, Indian Reprint, Calcutta, 1973.

Das, Mita, Ghosh, Ashok K., Ray, Ranjana, 'Change in Traditional Industry : A Case Study of Potters', *Man in India*, Vol. 7, No. 3-4, July-Dec. 1981, Ranchi.

Datta, K. K., *Survey of India's Social Life and Economic Conditions in the Eighteenth Century, 1707-1813*, Calcutta, 1961.

Datta, K. K., Jha, Jatashankar, *The Comprehensive History of Bihar*, Vol. III, Part I, Patna, 1976.

Deepak Kumar (ed.), *Science and Empire Essays in Indian Context (1700-1947)*, Delhi, 1991.

Dharampal, *Indian Science and Technology in the Eighteenth Century: Some Contemporary European Accounts*, Delhi, 1971.

Diwakar, R. R., *Bihar Through the Ages*, Calcutta, 1959.

Dumont, Louis, *Homo Hierarchicus*, Chicago, 1970.

Firdaus, Rana., 'A Note on Textile Crafts Depicted in Indian Paintings', *Proceedings of Indian History Congress*, 43rd Session, Kurukshetra, 1982.

Forbes R. J., *Studies in Ancient Technology*, 8 Vols., Leiden, 2nd edn., 1964-6.

Geoghegan, J., *An Account of the Silk in India especially of the Various Attempts to Encourage and Extend Sericulture in that Country*, Calcutta, 1872.

Ghoshal, H. R., 'Cotton Industry in Bengal, Bihar and Orissa during the Early 18th Century', *Journal of Indian History*, Vol. XVIII, No. 2, 1939.

———— *Economic Transition in the Bengal Presidency*, 1793-1833, Patna, 1950.

Gode, P. K., *Studies in Cultural History*, 3 Vols. Hoshiarpur and Poona, 1911, 1960, 1969.

Goody, Esther N. (ed.), F*rom Craft to Industry. The Ethnography of Proto Industrial Cloth Production. The Cambridge Papers in Social Anthropology*, Cambridge, 1982.

Gopal, Surendra, 'Form of Textile Production in Gujrat in XVII Century', *Proceedings of India History Congress*, 1965.

———— 'Social Setup of Science and Technology in Mughal India', *Indian Journal of History of Science*, Vol. 4, 1969.

———— *Commerce and Crafts in Gujrat 16thto 17th Centuries-A Study in the Impact of European Expansion on the Pre Capitalist Economy*, New Delhi, 1975.

Grant, *A Sketch of the History of East India Company*.

Grierson, George, A., *Bihar Peasant Life, being a Discussive Catalogue of the Surrounding of the People of that Province*, First Published 1885, Delhi Reprint, 1975.

Grover, B. R., 'An Integrated Pattern of Commercial Life in the Rural Society in North India during the 17th and 18th Centuries', *Proceedings of Indian Historical Records Commission*, Vol. XXXVIII, 1966: 121-153.

Habib, Irfan, *The Agrarian System of Mughal India, 1556-1707*, Bombay, 1963.

————— 'The Historical Background of the Monotheistic Movements of 15^{th} to 17^{th} Centuries', Seminar on Ideas- Medieval India, University of Delhi, 1965, Mimeo.

————— Technological Changes and Society, 13^{th} and 14^{th} Centuries', Presidential Address, Section II, *Proceedings of the Indian History Congress*, Varanasi Session, 1969.

————— 'Potentialities of Capitalistic Development in the Economy of Mughal India', *Journal of Economic History*, Vol. 29, No. 1, March 1669; the same with revisions pub. in *Enquiry*, N. S.III (3), (O.S. NO, 15), Winter 1971, Delhi.

————— 'The System of Bills of Exchange (Hundis) in the Mughal Empire', *Proceedings of the Indian History Congress*, 1972.

————— 'Notes on the Indian Textile Industry in the 17^{th} Century', *Professor S. C. Sarkar Felicitation Volume*, New Delhi, 1976.

————— 'Technology and Barriers to Social Change in Mughal India', *Indian Historical Review*, Vol. V, No.1-2, July 1978 to Jan.1979, Delhi.

————— Technology and Economy of Mughal India', *Indian Economic and Social History Review, Vol. XVII, No. 1*, Jan-March, 1980, Delhi.

————— 'Changes in Technology in Mughal India', *Studies in History*, Vol. II, No. I, 15-39.

————— 'Capacity of Technological Changes in Mughal India', in A. Roy, S. K. Bagchi (eds.), *Technology and Culture*, Delhi, 1982.

————— An Atlas of the Mughal Empire, Political and Economic Maps, Delhi, 1983.

————— Irfan Habib and Tapan Raychaudhuri (eds.), *The Cambridge Economic History of India*, 1200-1750, Vol. I, New Delhi, 1982, rpt. 1984.

————— *Essays in Indian History. Towards a Marxist Perception*, 1995.

————— 'Reason and Science in Medieval India', in D. N. Jha (ed.), *Society and Ideology in India. Essays in Honour of Professor R. S. Sharma*, New Delhi, 1996.

W. Hamilton, *A Geographical, Statistical and Historical Description of Hindostan and the Adjacent Countries*, 2 vols., London, 1820.

Harskovits, M. J., *Man and his Works*, New York, 1952.

Hasan, Aziza, 'Mints of the Mughal Empire a study in Comparative Output' *Proceedings of Indian History Congress*, 29th Session, Part I, 1967.

Hoey, William, *A Monograph on Trade and Manufactures in North India*, Lucknow, 1880.

Hossain, Hameeda, 'The Alienation of Weavers: Input of the Conflict between the Revenue and Commercial Interests of the East India Company, 1752-1800', in Trithankar Roy (ed.), *Cloth and Commerce: Textile in Colonial India*, 1996; also in *Indian Economic and Social History Review*, Vol.26, No.3, July-Sept 1979: Delhi.

——————— *The Company Weavers of Bengal, The East India Company and the Organisation of Textile Production in Bengal, 1750-1813*, Delhi, 1988.

Hunter, W. W. (ed.), *A Statistical Account of Bengal*, Vol. XII – *Gaya and Shahabad*; Vol. XIII – *Tirhut and Champaran*; Vol. XIV – *Bhaglapur and Santal Pargana*, Vol. XV – *Monghyr and Purneah*, Vol. XVI – *Hazaribagh and Lohardaga*; Vol. XVII – *Singhbhum, Manbhum and Tributary state of Chotanagpur*, Calcutta, 1875-1878.

Hutton, S. H., *Castes in India*, Oxford, 1951.

——————— *The Annals of Rural Bengal*, Reprinted from 6th edn., London, 1883, Calcutta, 1965.

Irwin, J. and Schwartz, P. R. *Studies in Indo-European Textile History*, Ahmedabad, 1966.

Irwin J., 'Indian Textile Trade in the Seventeenth Century', *Journal of Indian Textile History*, Vol.3, Ahmedabad, 1957.

Jaggi, O. P., *Science and Technology in Medieval India*, Vol. III, Delhi, 1977.

Jha, J. S., 'East Indian Company's Cloth Investment in Bihar (1770-1778)', *Journal of Bihar Research Society*, Vol.46, No.1-4, Patna, 1960.

Karim, Abdul, *Murshid Quli Khan and His Times*, Dacca, 1963.

Khan, Ahmad Raza, 'Revenue Statistics of Bihar during the Mughal Period', *Proceeding of Indian History Congress,* 1979.

Khan, Iqtidar Alam, 'Pre Indigo Vats of Bayana', *Journal of Islamic Environment Design, Rome,* 1989.

Khan, Shafaat Ahmad (ed.), *John Marshall in India, Notes and Observations in Bengal, 1668-72,* London, 1927.

Kumar, Nita, *The Artisans of Benaras. Popular Culture and Identity 1880-1986,* 1988.

Kumar, N., *Image of Patna. A Supplement of Patna District Gazetteer, 1970,* Patna, 1971.

Lefroy, Maxwell, H., *Report on an Inquiry into the Silk Industry in India,* Vol.4, Calcutta, 1924.

Liotard, *Memorandam on Dyes of Indian Growth,* Calcutta, 1881.

Lorenzen, David, N., 'Tradition of Non-Caste Hinduism: The Kabir Panth', *Contribution to Indian Sociology,* New Delhi, Vol. 21, No. 2, July-Dec. 1987.

Madan, T. N. 'Social Organisation', in V. B. Singh (ed.), *Economic History of India: 1857-1957,* Bombay, 1975.

Malinowski, Bronislaw, *Sex, Culture and Myth,* London, 1963.

Milburn, W., *Oriental Commerce,* 1825.

Mishra, Girish and Pandey, Brajkumar (eds.), *Sociology and Economics of Casteism in India: a Study of Bihar,* 1996.

Mitra, D. B. *The Cotton Weavers of Bengal,* Calcutta, 1978.

Moreland, W. H., *From Akbar to Aurangzeb, A Study in Indian Economic History,* London, 1923.

Morris D. Morris, 'Values as an Obstacle to Economic Growth in South Asia', *Journal of Economic History,* Vol. XVII.

Mukerji, N. G., *A Monograph of the Silk Fabrics of Bengal,* Calcutta, 1903.

——————— *Report on An Inquiry into the State of the Tasar Silk Industry in Bengal and the Central Provinces of India,* Calcutta, 1905.

Mukharji, T. M., *Art Manufacturers of India*, Calcutta, 1888, reprint, New Delhi, 1974.

Mukherjee, Meera, *Metal Craftsmen of India*, Calcutta, 1978.

Mukherjee, Radha Kamal, 'The Economic History of India: 1600-1800', Published originally in *Journal of the United Provinces Historical Society*, Vol. 16, Lucknow, and later as a book, Allahabad, 1967.

Mukhia, Harbans, 'Social Resistance to Superior Technology: The Filature in the Eighteenth Century Bengal', *Indian Historical Review*, Vol.II, No.1-2, 1984-85.

———— Ideology of the Bhakti Movement, The Case of Dadu Dayal, *History and Society*.

Mukhopadhyay, Rajatsubhra, 'The Cultural Framework of Agriculture: Some Observations', *Trends in Social Science Research*, Vol. I, No. 1, June 1994.

Narain, Brij, *India Economic Life, Past and Present*, London, 1929.

Naqvi, H. K., *Urban Centres and Industries in Upper India 1556-1803*, Bombay, 1968.

O'Conor, *Note on Lac*, Calcutta, 1874.

Oldham, C. E. A. U., 'An Old description of the Monghyr Fort', *Bengal, Past and Present*, Vol.27, No.54, 1924.

O'Malley, L. S. S., *Census of India* , 1911, Vol. V, Part I, Calcutta, 1913 .

Pacey, Arnold, *The Culture of Technology*, Oxford, 1983.

Parsons, Talcott, and Smelser, Niel. J., *Economy and Society*, London, 1956.

Pavlov, V. I., *Indian Capitalist Class: A Historical Perspective*, Delhi, 1964.

———— *Historical Premises for India's Transition to Capitalism (late 18th to mid 19th century)*, Moscow, 1978.

Perlin, Frank, 'Proto-Industrialization and Pre-Colonial South Asia', *Past and Present*, No.98 (1983), 30-95.

Prasad, H. K., 'The Patna School of Painting' in *K. P. Jayswal Commemoration Volume.*

Prasad Rajiv Nain, 'Commercial Life in Patna in Seventeenth Century', Kashi Prasad Jayswal Memorial Lecture, 27th Nov 1991, K. P. Jayswal Research Institute, Patna.

Qaisar, A. J., 'The Role of Brokers in Medieval India', *Indian Historical Review,* Vol. I, No.2, Delhi, 1974.

———— *Indian Response to European Technology and Culture, A.D.1498-1707,* New Delhi, 1982.

———— *Building Construction in Mughal India,* Delhi, 1988.

Rab, S. F., *Encyclopedic Survey of Bihar.*

Rafiqi, Z. A., 'A Review of Textile Production in Bihar in the Eighteenth Century', *Proceedings of Indian History Congress,* 1972.

Rahman, A. (ed.), *History of Indian Science, Technology and Culture. A.D. 1000-1800,* 1999.

———— *A Perspective in Indian Science,* Vol. III, Part 1.

Ramaswamy, Vijaya, 'Weavers Folk Traditions as a Source of History', *Indian Economic Social History Review,* Vol. XIX, No.1, Delhi, 1982.

———— *Textiles and Weavers in Medieval South India,* Delhi, 1985.

Ray, G. S., Ranjana Das, 'Potters Craft in a Village in West Bengal', *Bulletin of the Cultural Research Institute,* Vol.V, No.1-2, 1966.

Raychaudhri, T., *Bengal under Akbar and Jahangir. An Introductory Study in Social History,* 1st edn, Calcutta, 1955, 2nd edn, Delhi, 1969.

Raychaudhuri, T., *Jan Company in Coromandel, 1605-1690: A Study in the Interrelations of European Commerce and Traditional Economics,* S-Gravenhage, 1962.

Raye, N. N., *The Annals of the Early English Settlement in Bihar,* Calcutta, 1927.

Razeq, Khaja Abdur, 'Sericulture in Manbhum and Associated Observances', *Man in India,* Vol.39, No.1, Ranchi, Jan-March 1959.

Reports and Documents Connected with the Proceedings of the East India Company in regard to the Culture and Manufacture of Cotton Wool, Raw Silk and Indigo in India, printed by the Order of the East India Company, London, 1836.

Risley, H. H., *Tribes and Castes of Bengal, Ethnographic Glossary* Vol. I, II, 1891, Indian Reprint, Calcutta, 1981.

Roy, Tirthankar, *Artisans and Industrialization. Indian Weaving in the Twentieth Century,* Delhi, 1993.

Roychaudhry, P. C., *Inside Bihar,* Calcutta, 1962.

Sangar, S. P., 'Silk Cloth in the 17th Century', *Proceedings of Indian History Congress,* 1969.

———— 'The Ambarti Cloth of Bihar', *Proceeding of Indian History Congress,* 1973.

Sanyal, Hiteshranjan, 'Social Mobility in Bengal: Its Sources and Constraints', *Indian Historical Review,* Vol. 2, Delhi, 1975-76.

Sarkar, Jadunath, 'Travels in Bihar', *Journal of Bihar and Orissa Research Society,* Vol. V, Part 4, Patna.

———— *The History of Aurangzeb,* 5 vols., Calcutta, 1973.

Sarkar, Jagdish Narain, *Studies in Economic Life in Mughal India,* Delhi, 1975.

———— 'The Cotton Trade in Patna in Early 17th Century', *Indian Historical Quarterly,* Vol. XII, No.4, Madras, 1936.

———— 'The Saltpetre Industry of India in the 17th Century with Special Reference to Bihar', *Journal of Bihar and Orissa Research Society,* Vol. XXIII, Patna, 1937.

———— 'Saltpetre Industry in India in the 17th Century', *Indian Historical Quarterly,* Vol. XIV, Madras, 1938.

———— 'Silk Trade of Patna in Early Seventeenth Century', *Indian Historical Quarterly,* Vol. XV, No.2, Madras, 1939.

———— 'Patna and Its Environs in the 17th Century - A Study in Economy History', *Journal of Bihar Research Society,* Vol. XXXIV, Part 1-2, Patna, 1948.

———— 'Indigo as a Form of Commercial Agriculture in India during the first half of the Seventeenth Century', *Dr. Sarkar Mookerji Felicitation Volume*, 1969.

———— 'The Imperial Monopoly in Indigo (1633-35), *Journal of Bihar and Orissa Research Society*, Vol. 1, Part 1-4, Patna.

Saraswati, Baidynath, 'Caste, Craft and Change', *Man in India*, Vol.43, No.3, Ranchi, 1963.

Serebriakov, I. D., 'The Poetry of Weavers and Tanners', in D. P. Chattopadhyaya (ed.), *Indian Studies Past and Present*, Vol. VIII, 1966-67.

Singh, N. P., 'The Indigo Industry of Bihar and the Oppression of Ryots (1833-1858)', *Proceeding of Indian History Congress*, 1981: 503-508.

Singh, Upendra Narayan, *Some Aspects of Rural Life in Bihar.*

Singh, V. B. (ed.), *Economic History of India 1857-1957*, Bombay, 1975.

Sinha, N. K., *The Economic History of Bengal: From Plassey to the Permenent Settlement*, Vol.1-2, Calcutta, 1961-1963.

Sinha, Surajit, 'Expressions of Sentiments in the Songs associated with the Karma Festival of Rural Manbhum', *Man in India*, Vol. 32. No. 1, Jan-March, 1957, Ranchi.

Subrahmanyan, Sanjay (ed.), *Merchants, Markets and the State in Early Modern India*, New Delhi, 1990.

Tallents, P. C., *Report on the Census of India, 1921*, Vol.7, Part 1, Patna, 1923.

Taylor, J., *A Sketch of the Topography and Statistics of Dacca*, Calcutta, 1840.

———— *A Descriptive and Historical Account of the Cotton Manufactures of Dacca in Bengal*, London, 1851.

Temple, R. C. (ed.), 'Documents Relating to the First English Commercial Mission to Patna', *Indian Antiquary*, Bombay, 1914.

Thakur, J. N., 'Lac Industry in Bihar', *Journal of Bihar Research Society*, Vol. 60, No.1-4, Patna, 1974.

Thornston, Edward, *A Gazetteer of the Territories under the Government of the East Indies and of the Native States in the Continent of India*, First Published 1858, Reprint 1984.

Trivedi, K.K., Indigo in Bayana Region in 17th Century, Manufacturing Process and its Implication, Working Paper Series, SSS/1989/ ITNI Jawaharlal Nehru University, New Delhi.

———— 'Innovation and change in indigo production in Bayana, Eastern Rajasthan', *Studies in History*, Vol. 10, No. 1, Jan-June, 1994.

———— *Agra: Economic and Political Profile of a Mughal Suba, 1580-1707*, Pune, 1998.

Varadrajan, Lotika, 'Impact of European Traders on Indian Handicrafts and Industries', *Indica*, Vol.16, No.1-2, 1979.

Verma, S. P., 'Technology in Mughal India, Evidence of Mughal Painting'.

Verma, Tripta, *Karkhanas under the Mughals From Akbar to Aurangzeb A Study in Economic Development*, Delhi, 1994.

Ward, A *View of the History, Literature and Religion of The Hindoos*, Vol.1, London, 1817.

Wardle, Thomas, *Monograph on the Tusser and other wild Silks of India and on Dye stuffs of India*, London, 1878.

———— 'History and Description of the Growing Uses of Tussur Silk', Journal of the Society of Arts, 12th June 1891.

Watt, G., *Dictionary of the Economic Products of India*, 6 vols (Vol, VI issued in four parts), Calcutta, 1889-93.

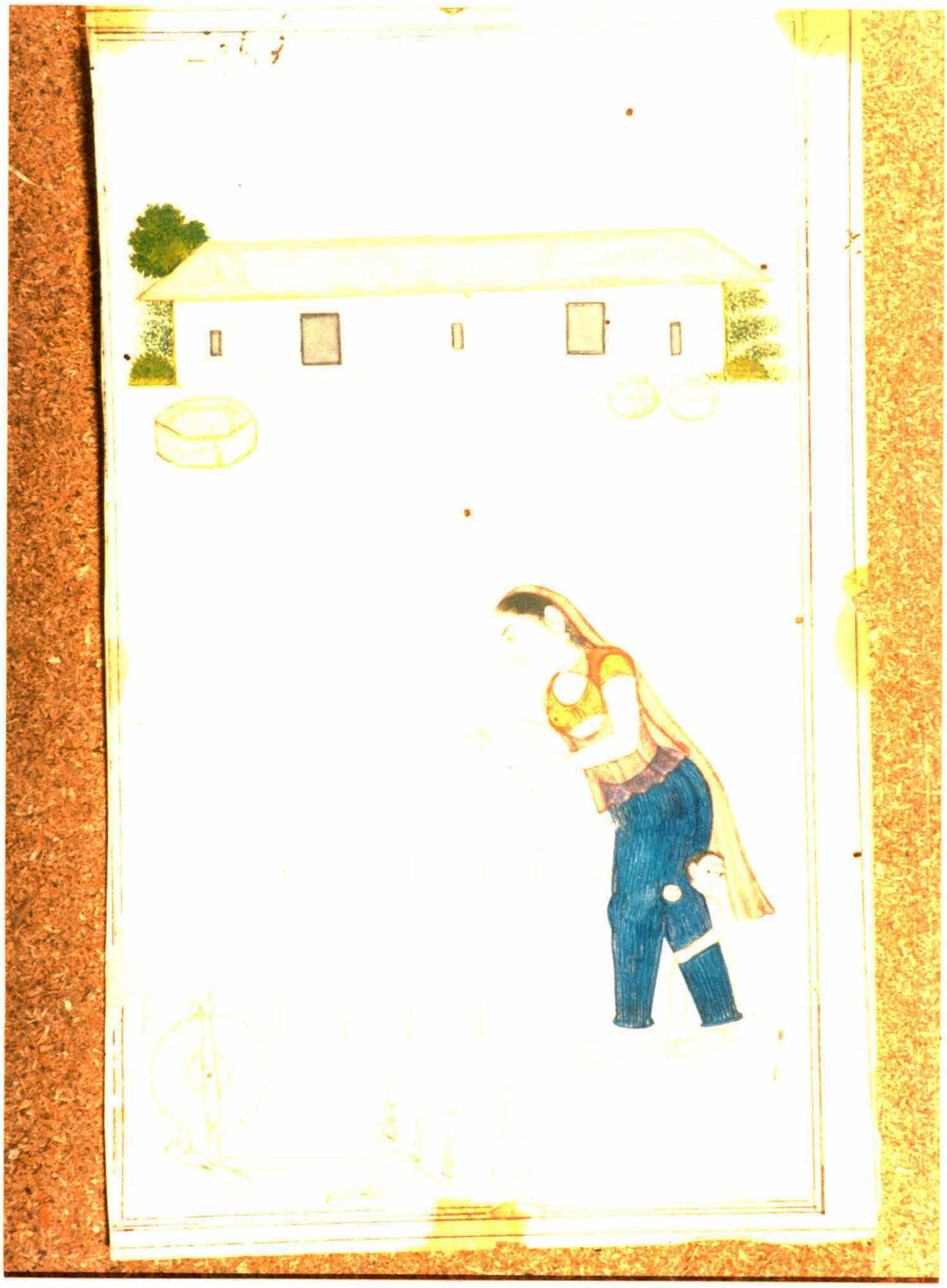
———— *The Commercial Products of India Being an Abridgement of 'The Dictionary of the Economic Products of India'*, London, 1908.

White, Lynn Jr., *Medieval Technology and Social Change*, New York, 1964.

Wise, James, *Notes on the Race, Castes and Trades of Eastern Bengal*, London, 1883.



A 19th century Patna *Qalam* painting on paper depicting a *dhuniya* or cotton carder, carding cotton wool. A woman is sitting with an empty bamboo basket to collect the cleaned cotton. Patna Museum.



A 19th century Patna *Qalam* painting on paper depicting a woman standing near a *Charkha.* A child is holding her right leg. The woman is combining her household chores with spinning. Patna Museum.



A 19th century Patna *Qalam* painting on paper depicting a village *barahai* or carpenter making a *Charkha.* A woman waits to probably carry the *Charkha* for her spinning. Patna Museum.



A 19th century Patna *Qalam* painting on paper showing two *rangrez* or dyers. Patna Museum.



A 19th century Patna *Qalam* painting on paper depicting a weaver or n*ewargar* seated on a mat in the act of making n*ewar* for bedsteads. Patna Museum.



A 19th century Patna *Qalam* painting depicting a *chhapagar* or printer, printing a sari with a wooden block. Patna Museum.



A 19th Century Patna *Qalam* painting on paper depicting a *lohar* or iron smith working on his hearth, bellows to supply a blast to the fire, anvil, a few pair of tongs or pincers and a few hammers. Patna Museum.



A 19th Century Patna *Qalam* painting on paper of a *lohar* or blacksmith's shop depicting two blacksmiths engaged in making an iron object, Patna Museum.



A 19th century Patna *Qalam* pencil drawing on paper depicting an engraver in the act of engraving incisive designs on a metal vase. A customer is holding a vase. Patna Museum.



A 19th century Patna *Qalam* painting depicting a silver *bidri* worker. Patna Museum.



A woman reeling tasar silk from tasar cocoons. She is using a crudely fashioned reel or spool composed of slips of bamboo, forming the framework of the cone.
Field study of craft technology in village Puraini, District Bhagalpur, (1997).



A man on a *charkha* (above), and weaver on his loom (*kargah*) (below)
Field study of craft technology in village Puraini, District Bhagalpur,(1997).

